

# *Wang Professional Computer Series*

## *Printer Software Administration Guide*

**WANG**

## OVERVIEW

The Wang PC supports a variety of Wang and non-Wang printers. Each printer may require different codes to print certain characters, such as a cent symbol (¢), or perform specific hardware functions, such as performing a line feed. The software that sends the correct codes to the printer is called the **printer driver**.

The printer driver interprets the data in each line using information that is stored in **printer tables**. There are two printer tables — the Printer Function Table and the Character Translate Table.

The Printer Function Table defines the hardware functions and escape codes for a given printer. The Character Translate Table defines the Wang PC WISCII character positions for a given print wheel or font. Refer to Chapter 5 in this manual for a more detailed explanation of the printer tables and escape codes.

## PRINTERS SUPPORTED BY THE WANG PC

Your Wang Professional Computer supports Wang printers as well as non-Wang printers that meet specific hardware requirements. The PC supports both serial and parallel printers. Some printers, such as the Wang PM019 Colorwriter, can be serial or parallel.

### Serial Printers Supported

Most serial printers produce letter-quality characters. Following is a list of Wang serial printers:

- PC-PM012 Daisy Wheel Printer (20 cps)
- PC-PM014 Daisy Wheel Printer (55 cps)
- PC-PM015 Daisy Wheel Printer (40 cps)

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- 75PC-PM16T Matrix Printer (160 cps)
- PC-PM019 Colorwriter Multi-Functional Matrix Printer

### Parallel Printers Supported

Most parallel printers generate draft and near letter-quality type. Following is a list of Wang parallel printers:

- PC-PM010 Matrix (80 cps)
- PC-PM016 Matrix Printer (160 cps)
- PC-PM019 Colorwriter Multi-Functional Matrix Printer

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#### NOTE:

*Although you can no longer purchase the PC-PM012 and PC-PM010 printers, Wang continues to provide the software needed to support them.*

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Daisy wheel printers and matrix printers form characters in different ways. A daisy wheel printer uses a physical device called a **daisy wheel**, a printing element that looks like a flattened daisy flower. The element is made up of 96 petals. Each petal contains a letter or symbol. When the petal is struck against the paper, a character is formed.

A matrix printer forms characters using electric signals sent to pins on the printhead. The electric signals correspond to information contained in software files called **fonts** that are stored in the printer. In a font the shape of each character is described by a two-dimensional matrix of dots.

### WHAT IS PRINTER SUPPORT SOFTWARE?

The Printer Support software allows you to install and modify printer software. The Printer Support software also allows you to specify whether you are using a serial or parallel printer or both.

The Printer Support software comes on two diskettes.

- The Printer Installation diskette (release 3.0)
- The Printer Support diskette (release 3.0)

### The Printer Installation Diskette

The Printer Installation diskette includes

- The Install utility
- The Wang Generalized Printer Driver Plus
- Printer tables for Wang printers
- The files you need to install a Wang Thermal Printer

## The Printer Support Diskette

The Printer Support diskette includes

- The Printer Function Table Editor
- The Character Translate Table Editor
- Error, help, and message files for the printer table editors

## CHOOSING AN INSTALLATION PROCEDURE

The installation procedure you choose depends on whether you are installing a Wang or a non-Wang printer. If you are installing a Wang printer, you will probably want to use the Install utility. If you are installing a non-Wang printer, you must manually install the printer software.

If you have purchased a new Wang PC with a Wang printer, you may have installed the printer software at the same time you installed the PC system software. You may, however, want to use the Install utility to install additional printers, replace an installed printer, or remove an installed printer.

### Using the Install Utility

You can quickly and easily install printer software for one or more Wang printers using the Install utility. (Refer to Chapter 3 in this manual for detailed procedures.) The utility performs the following functions:

- Copies the Generalized Printer Driver Plus file onto your system
- Edits the system configuration file
- Creates a driver configuration file
- Creates or edits a history file
- Copies the appropriate printer tables
- Copies the printer table editors (optional)
- Edits selections on the Printer Support menu to use current releases of the printer table editors
- Adds Redirection options to the Printer Support menu

After using the Install utility, you may wish to edit the configuration files or printer tables. Refer to Chapters 4 and 5 in this guide for information on manual installation procedures and editing of the printer tables.

### Manual Installation of Printer Software

If you are using a non-Wang printer, you cannot install printer software using the Install utility. You must manually perform the functions described above. That is, you must copy the printer driver files onto your system, create the appropriate printer tables, and edit the system and driver configuration files. Refer to Chapters 4 and 5 in this manual for detailed procedures.

### UNDERSTANDING THE GENERALIZED PRINTER DRIVER PLUS (GPD+)

The Wang Generalized Printer Driver Plus is a software program that supports any ASCII or WISCII character or line printer provided that the printer operates according to certain specifications. Refer to Chapter 2 in this manual for detailed information on these specifications.

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#### NOTE:

*ASCII is an acronym for American Standard Code for Information Interchange. It is an industry-standard code used to represent letters and numbers. The ASCII character set contains 128 characters. WISCII is an extended ASCII character set used in Wang PC systems. It contains 256 characters. Refer to Appendixes A and B for the ASCII and WISCII character sets.*

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The generalized printer driver translates application data, such as character or function codes embedded in a text file or a word processing document, into codes that the printer understands. The driver looks up codes for functions supported by the printer in the Printer Function Table and looks up codes that specify the location of WISCII characters for a given printer in the Character Translate Table.

You can use the Generalized Printer Driver Plus with most applications supported on the Wang PC. However, some application packages come with a printer driver tailored to the specific requirements of the application. Refer to the application's user manual for information on installing and using its driver (instead of the Generalized Printer Driver Plus).

## TRANSPARENT MODE

The Generalized Printer Driver Plus software does not support printing in certain applications, such as Business Graphics, nor does it support pointing devices, such as the mouse. Consequently, when you print graphics or use the mouse, you use the driver only to send the data directly to the printer. To do this, you enable **transparent mode**. (The driver appears transparent to the application; that is, the application cannot "see" the driver.)

When you enable transparent mode, the driver does not use the printer tables to translate data coming from the application program into codes understood by the printer. In transparent mode, the driver simply controls the flow of data between the CPU and the printer.

Applications like Word Processing, PC Database, and PC Notebook cannot use transparent mode. To print successfully, they need to use information in the printer tables.

When you use the Install utility, the system automatically edits the driver configuration file (CONFIG.GPD) to disable transparent mode at power up. If your application requires transparent mode, you can enable this mode in one of three ways:

1. After starting the system up, you can enter the Disk Operating System (DOS) command PRNMODE 1 to enable Transparent mode or PRNMODE 0 to disable Transparent mode.
2. You can edit the driver configuration file. Refer to Chapter 4 for more information.
3. You can modify any system menu by selecting the Bypass Printer driver option. Refer to the *User's Guide* for information on modifying selections on system menus.

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### CAUTION:

*If you modify the driver configuration file so that the driver is in transparent mode when you turn the system on, you cannot disable transparent mode during that session. When transparent mode is enabled, the system discards the printer tables that are not needed. Discarding the printer tables minimizes the amount of space used in memory. To disable transparent mode, you must edit the driver configuration file and re-boot the system.*

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## CONNECTING THE PRINTERS

You connect each printer to the appropriate **port** on the back of the electronics unit on your Wang PC. (A printer port is an opening on the PC electronics unit to which you connect a printer. Refer to the installation instructions that came with your printer for information on connecting the printer to the PC.)

The electronics unit has two ports, one for a serial printer and the other for a parallel printer. If a Multiport Communications Controller (MCC) card is installed on your Wang PC, you have three additional RS-232-C ports to which you can connect communication devices or serial printers. If a Thermal Printer card is installed, you can also connect the Wang Thermal Printer. Therefore, you can connect up to six printers on your Wang PC.

## OPERATING MULTIPLE PRINTERS

You can connect up to six printers on your Wang PC. You then have two choices on how you use the printers.

1. You can send output to one printer at a time. To switch back and forth between the printers, you use the Printer Redirection utility. (Refer to the next section in this chapter for information on redirecting printer output.)
2. You can send output to more than one printer at the same time. This is called **concurrent printing**.

### Concurrent Printing

Before setting up your system to use the concurrent printing capability, note the following information:

- You can use the concurrent printing feature only if your application supports it.
- You cannot use the Install utility to set up the printer software for concurrent printing. You must **manually** install the printer software. (Refer to Chapter 4 in this manual for detailed instructions.) This includes
  - Editing the system and driver configuration files
  - Creating a unique driver configuration file for each printer
  - Entering a DEVICE line in the system configuration file for each driver configuration file
- You should not use the Redirection utility when you have set up the printer software for concurrent printing.

You perform concurrent printing operations using the DOS COPY command. (Refer to the *DOS Command Processor Guide*.) For example, to send a file to a parallel printer connected to the PC, enter the following command on the DOS Command Line:

```
COPY (file name) PRN
```

While the file is printing, you can send another file to a serial printer connected to the PC by entering the following command:

```
COPY (file name) PRN1
```

You can send a file to a serial printer connected to an MCC card using one of the following commands.

```
COPY (file name) PRN2    Sends output to the bottom port
                           on the MCC card
```

```
COPY (file name) PRN3    Sends output to the middle port
                           on the MCC card
```

```
COPY (file name) PRN4    Sends output to the top port on
                           the MCC card
```

You can print a word processing document and a text file from another application using the following sequence.

1. Use the Word Processing Document Print menu to send the word processing document to a printer.
2. Cancel out of the Word Processing application and select the DOS Command Processor.
3. Use the DOS COPY command (as described above) to send the text file to the desired printer.

## REDIRECTING PRINTER OUTPUT

When you send application data, or **output**, to a printer, the printer driver chooses the port based on various circumstances.

- If your PC automatically goes into the DOS Command Processor at start-up time, the driver sends output to the CPU parallel port.
- If your PC displays the Main System menu at start-up time, the driver sends output to the **last** port specified in the driver configuration file. In the following example of a driver configuration file, the driver would send output to the serial printer port (CPUS).

```
CPUP  /bin/PM10PC.PFT    /bin/PM10A.CTT
CPUS  /bin/PM12SC.PFT    /bin/PM1206A.CTT
```



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Using the Printer Redirection utility (RDIR.EXE), you can easily switch back and forth between any of the printers connected to your PC. (This utility is part of the PC system software.) This utility redirects printer output to a specified port.

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### NOTE:

*You should not use the Redirection utility if you have set up the printer software for concurrent printing.*

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You redirect printer output by selecting the correct option from the Printer Support menu. For example, you redirect output to the serial port by selecting the Redirect to Serial Port option. You can also use the Redirect utility by entering one of the following commands on the DOS command line.

DOS Command	Redirects To
<code>rdir 4 prn</code>	CPU parallel port
<code>rdir 4 prn1</code>	CPU serial port
<code>rdir 4 prn2</code>	MCC bottom port 2
<code>rdir 4 prn3</code>	MCC middle port 3
<code>rdir 4 prn4</code>	MCC top port 4
<code>rdir 4 prnt</code>	Wang Thermal Printer

You should use the Redirect utility only after the current printing job is completed. Otherwise, the data that is in the buffer (internal memory) will begin printing on the printer to which output has been redirected before the current print job is completed.

The Redirect options specific to the printers selected during installation are automatically added to the Printer Support menu when you use the Install utility.

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### NOTE:

*The Install utility does not remove any Redirect options from the Printer Support menu. If the menu contains options that are no longer needed on your system, you must modify the menu to remove them. Refer to the User's Guide for information on modifying system menus.*

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If you are manually installing printer software for a non-Wang printer, you must add the Redirect options to the Printer Support menu. Refer to the *User's Guide* for information on modifying system menus.



## OVERVIEW

You can use the new Wang Generalized Printer Driver Plus only if your PC and printer meet certain requirements. This chapter describes hardware and software requirements for your system.

This chapter also provides you with a system checklist that you should refer to before installing the printer software, as well as information on deleting printer files that belong to previous releases of the printer software.

## WANG PC HARDWARE AND SOFTWARE REQUIREMENTS

To install the printer software, you need the following PC hardware and software:

### Hardware

- A minimum of 128 KB memory
- Electronics unit (5- or 8-slot)
- Monitor
- A minimum of one 5 1/4-inch Diskette Drive

### Software

- Any PC operating system that supports a BIOS.SYS of 1.65 or greater, that is, any operating system greater than or equal to release 2.01.
- Printer Installation diskette (release 3.0)
- Printer Support diskette (release 3.0)

## PRINTER REQUIREMENTS

This section is for users who are attaching a non-Wang printer to the Wang PC.

The PC printer software supports any ASCII or WISCII character or line printer provided that the printer operates according to the specifications listed below. Refer to your printer manual to determine whether your printer meets these specifications.

- It must support a Centronics-standard parallel port or serial RS-232-C hardware interface.
- If your printer is a serial printer, it must support DC1/DC3 or XON/XOFF protocol. (The printer sends a DC3 or XOFF code to the driver when it cannot accept any more data; it sends a DC1 or XON code to the driver when it can accept data again.)
- It must support control codes for line feed (LF), form feed (FF), carriage return (CR), and NUL.
- It must disable automatic line feed (through a hardware DIP switch or through software).
- If your printer is used for word processing, it must support a 24 lines per inch (lpi) increment for correct printing of the subscript, superscript, and double underscore attributes.

## SYSTEM CHECKLIST

Before installing the printer software, note the following information and complete any steps, if necessary.

- The system software must be loaded if you have a Winchester disk. Refer to the *Wang Professional Computer System Software Installation Instructions* for complete details.
- Installing the software involves editing the system configuration file (CONFIG.SYS). Therefore, you should make backup copies of the essential system files (CONFIG.SYS, BIOS.SYS, COMMAND.COM, and MSDOS.SYS) before starting the installation. If the files are damaged during installation, you can start your system using the backup copies. Refer to the *User's Guide* for information on copying files.
- If you are attaching a printer to a Multiport Communications Controller card (PC-PM042), you must have Operating System 2.01 or later.
- If you are using an MCC card, you can install a maximum of six printers (one printer connected to the parallel port, one to the serial port, the Wang thermal printer connected to the Thermal Printer board, and up to three serial printers connected to the MCC card.) You can use only one MCC card for printing.

## DELETING OLD PRINTER DRIVER FILES

The Wang Generalized Printer Driver Plus does not require the files listed in Table 2-1. These files are associated with earlier versions of the printer driver.

If the files are on your system, you can delete them, or copy them to diskette if you wish to save them for later use. Whether you delete the files or copy them to diskette, be sure to delete the DEVICE lines in the CONFIG.SYS file for the first three files in the table.

### NOTE:

*The Install utility automatically deletes the Printer Index Table file (PRNXLT.COM), if it finds it. The Install utility also creates a new history file (WINSTALL.HST) appropriate to your printer configuration.*

If you are using a PC equipped with diskette drives only, you will probably have to remove the old printer driver files to make room on System Diskette I for the new driver files.

**Table 2-1. Old Printer Driver Files**

File Name	Function
SER1DRV.R.COM	CPU Serial Driver
PAR1DRV.R.COM	CPU Parallel Driver
MCCDRV.R.COM	Multiport Driver
PRNXLT.COM	Printer Index Table
EDPRNXLT.EXE	Printer Index Table Editor
EDPRNMSG.MSG	Printer Index Table Messages
EDPRNERR.MSG	Printer Index Table Error Messages
EDPRNHLP.MSG	Printer Index Table Help Messages
WINSTALL.HST	Printer History File
EDPDT.EXE	Printer Function Table Editor
EDPDTMSG.MSG	Printer Function Table Editor Messages
EDPDTER.MSG	Printer Function Table Editor Error Messages
EDPDTHLP.MSG	Printer Function Table Editor Help Messages

(continued)

Table 2-1. Old Printer Driver Files (continued)

File Name	Function
EDCTT.EXE	Character Translate Table Editor
EDCTTMSG.MSG	Character Translate Table Messages
EDCTTERR.MSG	Character Translate Table Error Messages
EDCTTHLP.MSG	Character Translate Table Help Messages

## MODIFYING THE PRINTER SUPPORT MENU

This section applies to users who are **manually** installing the printer software. (The Install utility automatically edits the Printer Support menu.)

The Printer Support menu allows you to edit the printer tables using the Character Translate Table Editor and Printer Function Table Editor menu selections. You must edit the menu selection for each printer table editor to use the **current** version of the editor, as indicated:

1. Edit the Character Translate Table Editor menu selection to use CTTED.EXE. (Previous releases of the printer driver software used EDCTT.EXE.)
2. Edit the Printer Function Table Editor menu selection to use PFTED.EXE. (Previous releases of the printer driver software used EDPDT.EXE.)

In addition, after deleting the Printer Index Table Editor (EDPRNXLT.EXE), you may wish to remove the Printer Index Table selection from the Printer Support menu.

You modify the Printer Support menu (the file name is PRINTMNU.DAT) using the Modify System Menu utility. (Refer to the *User's Guide* for information on modifying system menus.)

## OVERVIEW

This chapter provides you with procedures for installing printer software for a Wang printer using the Install utility.

The Install utility walks you through the steps needed to install one or more Wang printers on your Wang PC. You simply make selections from a series of screens.

The Install utility copies onto your system disk or diskette **only** the files appropriate to the selections you make on the printer installation screens.

After installing the software, you can edit the printer tables in order to change the Character Translate Tables or redefine hardware functions supported by your printer. Refer to Chapter 4 in this manual for more information.

## HOW DOES THE INSTALL UTILITY WORK?

The Install utility performs the following functions:

- Copies the Wang Generalized Printer Driver Plus file (GPDPLUS.EXE) onto your system disk or diskette.
- Copies the Multiport Communications Controller Shared Device Interface driver (MCCSDI.TTY) onto your system disk or diskette (if you install a printer connected to an MCC port).
- Edits the system configuration file (CONFIG.SYS) to include the names of the printer driver file (GPDPLUS.EXE) and the driver configuration file (CONFIG.GPD). Includes the name of the MCC driver file (MCCSDI.TTY), if appropriate.

- Creates the driver configuration file (CONFIG.GPD) and edits it to include port specifications and the file names of the printer tables.
- Copies **one** printer function table and one character translate table for each selected printer from the Installation diskette to your system disk or diskette.

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### NOTE:

*Each printer can have only one function table, but can use up to ten character translate tables. You must manually edit the driver configuration file for your printer if you want to use multiple character translate tables. Refer to Chapters 4 and 5.*

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- Allows you to copy the printer table editors needed to modify the printer tables from the Support Diskette to your system disk or diskette.
- Creates or edits a history file (WINSTALL.HST) that lists the printers most recently installed using the Install utility. (This file does not list printers that are installed manually.)
- Edits the Printer Support menu to provide selections for redirecting the printer to different ports, if necessary.

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### NOTE:

*If you have a Winchester disk drive, the printer driver file and the MCC Shared Device Interface driver file are copied into the root directory. The CONFIG.SYS and WINSTALL.HST files are edited or created in the root directory. The remaining files are copied into the BIN directory. If you have a single or dual-diskette drive, all the files are copied into the root directory on System Diskette I.*

---

The following information describes what happens when you install the Wang PM012 printer on a Winchester disk.

1. The Install utility adds the following line to the CONFIG.SYS file.

```
DEVICE = /GPDPLUS.EXE /BIN/CONFIG.GPD
```

Whenever you turn the system on, the operating system looks at this line to see what driver it needs to load. After loading the driver, it looks at this line to see what driver configuration file to use.

2. The utility copies the GPDPLUS.EXE file into the root directory.
3. The utility creates the CONFIG.GPD file in the BIN directory and enters the following line:

```
CPUS /bin/PM12SC.PFT    /bin/PM1206A.CTT
```



This line tells the driver to send data to the serial port (CPUS). It also provides the driver with the name of the Printer Function Table and the Character Translate Table.

4. The utility copies the Printer Function Table (PM12SC.PFT) and the Character Translate Table (PM1206A.CTT) for the serial printer into the BIN directory.
5. The utility copies the MCCSDI.TTY file into the root directory, if you have an MCC board installed.
6. The utility updates the WINSTALL.HST file (or creates it, if it does not exist).
7. The utility copies the printer table editors into the /BIN directory, if requested.

## BEFORE YOU BEGIN

Before you begin to install the printer software, note the following information and complete any procedures, if necessary.

- Be sure to read Chapter 2. Chapter 2 includes the following information:
  - A description of hardware and software requirements for your PC
  - A system checklist
  - Old printer driver files that you may want to delete
- If your diskette is too full or damaged, the system will display the error message "Write Error on Output File" when you run the Install utility. You must then delete some files to make room for the printer files or run the Check Disk utility to see if there is a problem with the diskette.
- Since the system edits the CONFIG.SYS file during installation, you should make backup copies of the essential system files (the CONFIG.SYS file, BIOS.SYS, COMMAND.COM, and MSDOS.SYS) before starting the installation. If the files are damaged during installation, you can start your system using the backup copies.

### INSTALLING PRINTER SOFTWARE ON A WINCHESTER DISK

Perform the following steps to install the printer software on a Winchester disk.

1. Be sure the door to Drive A is open. Turn the system on. (Refer to the *Fundamentals Guide* for instructions.)
2. Enter the date and time on the Date and Time screen. Press EXEC. The Main System menu appears. (If the DOS screen appears, go to step 4.)
3. Press the space bar to move the acceptance block next to Printer Support. Press EXEC. The Printer Support menu appears.

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00:00:00

Wang Professional Computer  
P R I N T E R S U P P O R T M E N U  
Release x.xx

Select an Item and Proceed

■ Character Translate Table Editor  
└ Printer Function Table Editor  
└ Install Printer  
└ System Utilities  
└ Redirect to Parallel Port  
└ Redirect to Serial Port #1  
└ Other

SPACE BAR - Item Select  
EXECUTE - Proceed  
CANCEL - Previous Menu

Figure 3-1. Printer Support Screen

4. Insert the Printer Installation diskette in Drive A and close the drive door.
5. Select Install Printer and press EXEC. The system displays the first screen of the Install utility. Press any key to proceed.

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#### NOTE:

You can also run the utility by selecting *Other* from the Printer Support menu and entering *A:installp* as the file specification. Or, you can select *DOS Command Processor*, change to drive A, and enter *installp* on the DOS Command Line.

---

6. Read each screen carefully and follow the screen instructions. The system will prompt you to remove and insert diskettes at the appropriate times. You will notice that the utility displays the Change Printer Configuration screen again, after you complete the Printer Selections screen. You must then select Changes completed from the Change Printer Configuration screen.

When the installation is finished, the utility displays the following message:

The Printer Installation process has been successfully completed. Do you want to re-boot your Wang computer?

7. Select Yes and press EXEC. (The system does not accept changes to the CONFIG.SYS file until you re-boot.)
8. Remove the Printer Installation diskette from Drive A and press EXEC. (Be sure to leave the drive door open.)
9. Turn the printer on. For the location of the power switch, refer to the user's manual supplied with your printer.
10. To test your printer, follow the instructions in Appendix C of this guide.

## NOTE:

*If you have installed the printer software and are having trouble with the printer, refer to the Troubleshooting Guide and to your printer manual.*

## INSTALLING PRINTER SOFTWARE ON A DUAL-DISKETTE DRIVE

Perform the following steps to install the printer software on a dual-diskette drive:

1. Insert System Diskette 1 in Drive A and close the drive door. Turn the system on. (Refer to the *Fundamentals Guide* for instructions.)
2. Enter the date and time in the Date and Time screen. Press EXEC. The Main System menu appears. (If the DOS screen appears, go to step 5.)
3. Press the space bar to move the acceptance block next to Printer Support. Press EXEC. The Printer Support menu appears.
4. Remove System Diskette 1 from Drive A. Insert it in Drive B and close the drive door.

### 3-6 USING THE INSTALL UTILITY

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5. Insert the Printer Installation diskette in Drive A and close the drive door. During installation, the system will copy the appropriate files from the Printer Installation diskette onto System Diskette 1.
6. Select Install Printer from the Printer Support menu and press EXEC. (You can also select Other and enter A:installp as the file specification. Or, you can select DOS Command Processor, change drives, and enter installp on the DOS Command Line.) The system displays the first screen of the Install utility.
7. Read each screen carefully and follow the screen instructions. The system will prompt you to remove and insert diskettes at the appropriate times.

You will notice that the utility displays the Change Printer Configuration screen again after you complete the Printer Selections screen. You must then select Changes completed from the Change Printer Configuration screen.

You will also notice that the utility offers you the option of copying the printer table editors onto your system disk (System Diskette 1). Even after deleting old printer driver files, you probably will not have enough space on System Diskette 1 to include the editors. Therefore, it is recommended that you choose **not** to copy the editors at this time. (Refer to Chapter 5 in this manual for more information on the printer table editors.)

When the installation is finished, the utility displays the following message:

```
The Printer Installation Process has been
successfully completed. Do you want to
re-boot your Wang computer?
```

8. Select Yes and press EXEC. (The system does not accept changes to the CONFIG.SYS file until you re-boot.)
9. Remove the Printer Installation diskette from Drive A. Then remove System Diskette 1 from Drive B and insert it in Drive A. Close the drive door.
10. Turn the printer on. For the location of the power switch, refer to the user's manual supplied with your printer.
11. To test your printer, follow the instructions in Appendix C of this guide.

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#### NOTE:

*If you have installed the printer software and are having trouble with the printer, refer to the Troubleshooting Guide and to your printer manual.*

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## INSTALLING PRINTER SOFTWARE ON A SINGLE-DISKETTE DRIVE

Perform the following steps to install the printer software on a single-diskette drive:

1. Insert System Diskette 1 in Drive A and close the drive door. Turn the system on. (Refer to the *Fundamentals Guide* for instructions.)
2. Enter the date and time on the Date and Time screen. Press EXEC. The Main System menu appears. (If the DOS screen appears, go to step 5.)
3. Press the space bar to move the acceptance block next to Printer Support and press EXEC. The Printer Support menu appears.
4. Remove System Diskette 1 from Drive A.
5. Insert the Printer Installation diskette in Drive A and close the drive door.
6. Select Install Printer from the Printer Support menu and press EXEC. (You can also select Other and enter A:installp as the file specification. Or, you can select DOS Command Processor, change drives, and enter installp on the DOS Command Line.) The system displays the first screen of the Install utility.
7. Read each screen carefully and follow the screen instructions. The system will prompt you to remove and insert diskettes at the appropriate times.

You will notice that the utility displays the Change Printer Configuration screen again after you complete the Printer Selections screen. You must then select Changes completed from the Change Printer Configuration screen.

You will also notice that the utility offers you the option of copying the printer table editors onto your system disk (System Diskette I). Even after deleting old printer driver files, you probably will not have enough space on System Diskette I to include the editors. Therefore, it is recommended that you choose **not** to copy the editors at this time. (Refer to Chapter 5 in this manual for more information on the printer table editors.)

8. When the Final Printer Configuration Review screen is displayed, review it carefully and then press EXEC.

The Install utility will now copy the appropriate files from the Printer Installation and Printer Support diskettes to System Diskette 1. The system will prompt you when to remove and insert diskettes. Pay close attention to the prompts.

### 3-8 USING THE INSTALL UTILITY

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**NOTE:**

*You will need to switch the diskettes a number of times before all of the files are copied. It may take 10 — 15 minutes for you to complete this part of the installation.*

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9. When all the files are copied, the system will prompt you to insert the Printer Installation diskette in the drive and press any key to continue. The screen displays the following message:

The Printer Installation Process has been  
successfully completed. Do you want to  
re-boot your Wang computer?

10. Select Yes and press EXEC. (The system does not accept changes to the CONFIG.SYS file until you re-boot.)
  11. Remove the Printer Installation diskette from Drive A. Insert System Diskette I in the drive and press EXEC.
  12. Turn the printer on. For the location of the power switch, refer to the user's manual supplied with your printer.
  13. To test your printer, follow the instructions in Appendix C of this guide.
- 

**NOTE:**

*If you have installed the printer software and are having trouble with the printer, refer to the Troubleshooting Guide and to your printer manual.*

---

## REPLACING AN INSTALLED PRINTER

The Install utility allows you to replace an installed printer with another printer. The printer being replaced and the new printer must be the same type; that is, both printers must be serial or parallel. (The printers must be the same type because you cannot connect a serial printer to a parallel port or a parallel printer to a serial port.)

---

**NOTE:**

*Replacing (or removing) a printer does not delete the associated Character Translate Tables or Printer Function Table. If you need the disk space, you must delete the unused tables. Refer to the User's Guide for information on deleting files.*

---

Perform the following steps to replace an installed printer:

1. Insert the Printer Installation diskette in Drive A and close the door.
2. Select Install Printer from the Printer Support menu.
3. When the Change Printer Configuration screen appears, select Replace a printer. The system displays the Printer Selection screen.

If you select a serial printer on an MCC Port, the utility displays another screen that prompts you to state the port to which the printer is assigned (CPUS, MCC2, MCC3, or MCC4). (If you select a parallel printer, the utility automatically uses the parallel port (CPUP). If you select a serial printer on a system that does not have an MCC card, the utility automatically uses the serial port (CPUS).)

4. Select the replacing printer from the Printer Selection screen. The system displays the Installed Printer History Records screen.
5. Select the printer being replaced and press EXEC.
6. Select Changes completed and press EXEC.
7. Complete the Final Configuration Review screen and press EXEC.





## OVERVIEW

If you are using a non-Wang printer with your Wang PC, you must manually install the printer software. This includes

- Installing the Wang Generalized Printer Driver Plus
- Creating one or more driver configuration files
- Creating a printer function table
- Creating one or more character translate tables

You may also find the information in this chapter helpful if you have a Wang printer and want to edit the system or driver configuration files.

This chapter provides you with procedures for installing the printer driver and creating the associated driver configuration file(s). Chapter 5 provides you with procedures for creating printer tables.

## BEFORE YOU BEGIN

Before you begin to install the printer software, note the following information and complete any procedures, if necessary.

- Be sure to read Chapter 2. Chapter 2 includes the following information:
  - A description of hardware and software requirements for your PC
  - Printer requirements
  - A system checklist

- Old printer driver files that you may want to delete
- Modifications that you must make to the Printer Support menu
- Since you will be editing the CONFIG.SYS file, you should make backup copies of the essential system files (the CONFIG.SYS file, BIOS.SYS, COMMAND.COM, and MSDOS.SYS) before starting the installation. If the files are damaged during installation, you can start your system using the backup copies.
- Copy the Wang Generalized Printer Driver (GPDPLUS.EXE) into the root directory on your system. The file is on the Printer Installation diskette. (Refer to the *User's Guide* for information on copying files.)
- If you are attaching a printer to a Multiport Communications Controller card, copy the MCC Shared Device Interface driver file (MCCSDI.TTY) onto your system. The file is on the Printer Installation diskette. (Refer to the *User's Guide* for information on copying files.)
- If your diskette is too full or damaged, the system will display the error message "Write Error on Output File" when you run the Install utility. You must then delete some files to make room for the printer files or run the Check Disk utility to see if there is a problem with the diskette.

## INSTALLING THE GENERALIZED PRINTER DRIVER PLUS

You install a driver by including the appropriate command line in the system configuration file (CONFIG.SYS.). The command line identifies the driver to be used with a given printer or peripheral. If you are using a serial or parallel printer, the command line also identifies the driver configuration file. (The driver configuration file specifies the port used by a given printer and the file names of the printer tables. The next section describes this file in more detail.)

### Examples of Command Lines

Serial or parallel printer

```
DEVICE = /GPDPLUS.EXE /BIN/CONFIG.GPD
```

Wang Thermal printer

```
DEVICE = /THERMOD.COM F
```

MCC Shared Device Interface

```
DEVICE = /MCCSDI.TTY -s
```

The installation of the Generalized Printer Driver Plus depends on how many printers you are **operating** at the same time. (You can connect up to six printers.)

If you are operating one printer at a time, you install the driver **once**. For example, to switch between operating a serial and a parallel printer, you could enter the following command line. This line identifies the Generalized Printer Driver Plus program as the printer driver and CONFIG.GPD as the driver configuration file. (The driver configuration file includes information about each printer being used.)

```
DEVICE = /GPDPLUS.EXE /BIN/CONFIG.GPD
```

If you want to operate more than one printer **at the same time**, you must install the printer driver for **each** printer. (Since you can install one parallel and up to four serial printers, you can install the printer driver up to five times.) You specify GPDPLUS.EXE in each command line with a **unique** driver configuration file for **each** printer.

The following command lines in CONFIG.SYS support concurrent printing using two serial printers and one parallel printer.

```
DEVICE = /GPDPLUS.EXE /BIN/SERIAL1.GPD
```

```
DEVICE = /GPDPLUS.EXE /BIN/SERIAL2.GPD
```

```
DEVICE = /GPDPLUS.EXE /BIN/PARALL.GPD
```

Perform the following steps to install the Generalized Printer Driver Plus:

1. If you have a single or dual-diskette drive, insert the system diskette with the PCEDIT.EXE file in the drive you are currently using. If you have a Winchester disk drive, make sure the PCEDIT.EXE file is in the current directory or in the default directory.
2. Select DOS Command Processor from the Main System menu. Enter the file name PCEDIT.EXE at the DOS Command Line and press RETURN.

---

**NOTE:**

*You can also access the Editor by selecting Program Development from the Main System menu, or by selecting System Utilities and then Advanced Utilities. For a detailed description of the Editor, refer to the User's Guide or the Troubleshooting Guide.*

---

3. If you have a Winchester disk drive, enter the file name CONFIG.SYS and press EXEC. CONFIG.SYS appears on the screen and the cursor moves to the top line of the window.
4. If you have a single or dual diskette drive, remove the diskette with the file PCEDIT.EXE and insert the diskette with the CONFIG.SYS file (System Diskette I). Close the drive door. Enter the file name CONFIG.SYS and press EXEC. CONFIG.SYS appears on the screen and the cursor moves to the top line of the window.
5. Press the South cursor control key to move the cursor to the following line. If this is not the last line in the file, move the cursor to the last line.  
  
SHELL = /MENUDRV.R.COM -N001 -P/BIN
6. Press EXEC to create a blank line below the SHELL line or the last line in the file. The cursor moves to the beginning of the new line.
7. If you are operating one printer at a time, enter one command line. If you are operating more than one printer at the same time, enter a command line for each printer, assigning unique file names to each driver configuration file.

**NOTE:**

*Be sure to delete any command line(s) for earlier printer drivers, such as, DEVICE = SER1DRVR.COM.*

*If you are using the Multiport Communications Controller card, you must also install the Shared Device Interface (SDI) driver. That is, you must include the command line DEVICE = /MCCSDI.TTY -s in CONFIG.SYS, where s represents which slot you are using on the PC chassis. You can use Slots 1-8. The SDI driver command line must appear before the printer driver command line.*

---

8. Press SHIFT and CANCEL when you have finished modifying the file. When the prompt PRESS EXEC TO SAVE CHANGES, TYPE N AND CHANGES WILL BE LOST appears, press EXEC to save your changes and return to the DOS Command Line.

## USING THE DRIVER CONFIGURATION FILE

The driver configuration file is any text file that specifies the port used by a given printer and the file names of the printer tables. The file can reside in any directory. (The Install utility automatically creates a driver configuration file named CONFIG.GPD in the BIN directory (on a Winchester disk) or in the root directory (on a diskette).

A command line in a driver configuration file uses the following format:

`<Port> <Slot> <.PFT Table> <.CTT Table> <Mode>`  
`(optional) (optional) (optional)`

## Specifying Ports

The following table identifies the parameter used to specify each port type in a command line.

Table 4-1. Port Specifications

Port Type	Parameter Used
CPU Serial Port	CPUS
CPU Parallel Port	CPUP
Multiport Communications Card Port 2 (bottom)	MCC2
Multiport Communications Card Port 3 (middle)	MCC3
Multiport Communications Card Port 4 (top)	MCC4

The following command line tells the driver to send data to the serial port (CPUS). It also provides the driver with the name of the Printer Function Table (PM12SC.PFT) and the Character Translate Table (PM1206A.CTT). (These tables are used with the Wang PM012 printer.)

```
CPUS /bin/PM12SC.PFT /bin/PM1206A.CTT
```

## Specifying Character Translate Tables

You can enter the file names of up to ten Character Translate Tables in the command line for each port. This allows you to use multiple character sets. The first Character Translate Table in the command line is the default table at system start-up. The system assigns ascending character set numbers from 0 to 9 to the tables. In the following example, PM1506A.CTT is the default Character Translate Table.

```
CPUS PM15SC.PFT PM1506A.CTT DETAIL.CTT BOLDPS.CTT  
(PFT Table) (CTT Table 0) (CTT Table 1) (CTT Table 2)
```

You activate the desired character set using one of two methods. You can print a word processing document using the desired character character set. (You select the character set on the Word Processing Print menu.) The system will then use that character set for printing in all applications. For example, to use the BOLDPS.CTT table, you would select Character Set 2 on the Print menu.

You can also change the order of the translate tables in the driver configuration file so that the character set you want to use is listed as the first table. You must then start the system up again.

## Enabling and Disabling Transparent Mode

You specify in the command line whether to enable or disable Transparent mode at system start-up. To enable Transparent mode, you enter -T in the command line. (The hyphen is a **switch** character in DOS. A switch is an optional DOS command used to enable or disable a specific command.)

```
CPUS /bin/PM12SC.PFT /bin/PM1206A.CTT -T
```

## Single Printer Operation

If you are operating one printer at a time, you create one driver configuration file containing a command line for each printer. The following command lines in a file named CONFIG.GPD support five installed printers.

Table 4-2. Driver Configuration File Supporting Five Printers

File Name	Command Lines
CONFIG.GPD	CPUS /bin/PM12SC.PFT /bin/PM1206A.CTT MCC2 /bin/PM14SC.PFT /bin/PM1406A.CTT MCC3 /bin/PM15SD.PFT /bin/PM1506A.CTT MCC4 /bin/PM19SC.PFT /bin/PM19A.CTT CPUP /bin/PM19PC.PFT /bin/PM19A.CTT

## Concurrent Printing

If you are operating more than one printer at the same time, you create one driver configuration file for each printer, each containing one command line. The following files and command lines support five printers operating concurrently.

Table 4-3. Driver Configuration Files Supporting Concurrent Printing

File Name	Command Lines
PM12SC.GPD	CPUS /bin/PM12SC.PFT /bin/PM1206A.CTT
PM14SC.GPD	MCC2 /bin/PM14SC.PFT /bin/PM1406A.CTT
PM15SD.GPD	MCC3 /bin/PM15SD.PFT /bin/PM1506A.CTT
PM19SC.GPD	MCC4 /bin/PM19SC.PFT /bin/PM19A.CTT
PM19PC.GPD	CPUP /bin/PM19PC.PFT /bin/PM19A.CTT

**NOTE:**

*For each supported printer you must enter DEVICE = and the name of the driver configuration file in the CONFIG.SYS file. For example, the CONFIG.SYS file associated with the example in Table 4-3 would include the following device lines:*

```
DEVICE = /GPDPLUS.EXE /BIN/PM12SC.GPD  
DEVICE = /GPDPLUS.EXE /BIN/PM14SC.GPD  
DEVICE = /GPDPLUS.EXE /BIN/PM15SD.GPD  
DEVICE = /GPDPLUS.EXE /BIN/PM19SC.GPD  
DEVICE = /GPDPLUS.EXE /BIN/PM19PC.GPD
```

---

## **CREATING A DRIVER CONFIGURATION TABLE**

Perform the following steps to create a driver configuration file containing specifications for one or more ports:

1. Insert the system diskette with the PCEDIT.EXE file in the drive you are currently using. If you have a Winchester disk drive, make sure the PCEDIT.EXE file is in the current directory or in the default directory.
2. Select DOS Command Processor from the Main System menu. Enter the file name PCEDIT at the DOS Command Line and press RETURN.

**NOTE:**

*You can also access the Editor by selecting Program Development from the Main System menu, or by selecting System Utilities and then Advanced Utilities. For a detailed description of the Editor, refer to the User's Guide or the Troubleshooting Guide.*

---

3. If you have a Winchester disk drive, enter the desired file name and press EXEC. The prompt FILE DOES NOT EXIST, PRESS EXECUTE TO CREATE IT appears. Press EXEC to create the file.
4. If you have a single or dual-diskette drive, remove the diskette with the file PCEDIT and insert System Diskette I in the drive. Enter the desired file name and press EXEC. The prompt FILE DOES NOT EXIST, PRESS EXECUTE TO CREATE IT appears. Press EXEC to create the file.
5. Press EXEC to create a blank line in the window.



6. If you are operating one printer at a time, enter the correct parameter for each port you are using in the driver configuration file. For example, if you are using both the serial and parallel ports, enter CPUS on one line and CPUP on the next line.

If you are operating more than one printer at the same time, enter the parameter for one port in this configuration file. For example, if you are operating a serial and a parallel printer at the same time, enter CPUS in this file. When you have finished creating this file, you create another driver configuration file for the parallel printer and enter CPUP.

7. Enter the remaining information (slot, tables, mode) on each command line, if desired. If you have not created the printer tables, you may wish to enter the table names later. If you enter table names now, be sure to use the same names when creating the printer tables. The Printer Function Table name must end with the extension .PFT. The Character Translate Table name must end with the extension .CTT.

---

**CAUTION:**

*If you enable Transparent mode by entering -T in a command line, the system discards the printer tables at system start-up to minimize the amount of space used in memory. Consequently, you cannot disable transparent mode during the current session. To disable transparent mode, you must delete -T from the command line and re-boot the system.*

---

8. Press SHIFT and CANCEL when you have finished modifying the driver configuration file. The prompt PRESS EXEC TO SAVE CHANGES, TYPE N AND CHANGES WILL BE LOST appears at the top of the screen. Press EXEC to save your changes and to return to DOS Command Line.

You have now installed the printer driver and created a driver configuration file.

9. If you are operating more than one printer at the same time, create an additional driver configuration file for each printer.
10. To complete installation of the printer software, refer to Chapter 5 where you create the printer tables.

In general, you should re-boot the system any time you make changes to the configuration files. Otherwise, the system will use the original configuration files.

However, if you re-boot the system **before** creating the printer tables referenced in the configuration files, the system will display an error message.



## OVERVIEW

The printer driver interprets the application data in each line using information that is stored in the Printer Function Table and the Character Translate Table.

The information is stored in the tables in the form of **hexadecimal codes**. (A hexadecimal system is a counting system that uses 16 numbers as its base. The hex letters A to F stand for decimal numbers, 10 to 15.) Refer to Appendixes A and B for the hex codes for the ASCII and WISCII character sets.

---

### NOTE:

*The computer works with 8-place binary numbers. Instead of writing 8-place binary numbers many computers use one or two digit hexadecimal codes. For example, you can write the binary number 00001111 as hex code 0F.*

---

If you are using a Wang printer(s), the Install utility will automatically copy the appropriate printer tables according to the printer(s) you select during installation. The information in this chapter will be useful if you want to edit the printer tables.

If you are using a non-Wang printer, you should define printer tables specific to the printer. The information you enter in these tables can be found in your printer user manual.

### NOTE:

*The driver can use **any** printer tables, including tables defined for a different printer. However, by not defining tables for a specific printer, you may not take advantage of the printer's capabilities. In addition, the printer may not perform certain functions correctly and may generate incorrect characters.*

---

Before creating or editing a printer table, note the following information:

- The hexadecimal codes you enter into each table must be specific to your printer. Refer to your printer manual.
- You do not need to enter hexadecimal codes in all the fields that appear on the screen.
- You should not use the hexadecimal code FE in any escape code sequence because it is reserved by the system.

## THE PRINTER TABLE EDITORS

You use the Printer Function Table Editor (PFTED.EXE) to create or edit a Printer Function Table. You use the Character Translate Table Editor (CTTED.EXE) to create or edit a Character Translate Table. The PFTED.EXE file, the CTTED.EXE file, and the associated message files (listed below) are located on the Printer Support diskette.

PFTEDHLP.MSG  
PFTEDERR.MSG  
PFTEDMSG.MSG  
CTTEDHLP.MSG  
CTTEDERR.MSG  
CTTEDMSG.MSG

If you have a Winchester drive, the Editors and associated message files must be on your system before you can edit a printer table. (If you used the Install utility to install a Wang printer, the files may already be on your system.) You may wish to copy the Editors into the BIN directory (to keep from putting too many files onto the root directory). You can copy the message files into the same directory as the Editors, or onto a user-defined system path or the default path.

If you have a diskette-based system, there may not be enough space on System Diskette I for system software, the Editor, and the Editor message files. You can copy the Editor and associated message files onto another diskette and insert the diskette when necessary. (Instead of copying the files, you can insert the Printer Support diskette when necessary.)

If you used previous versions of the Wang generalized printer driver, be sure to delete the previous version of the Printer Function Table Editor (EDPDT.EXE), the Character Translate Table Editor (EDCTT.EXE), and the associated message files (refer to Table 2-1). (You do not need to delete previous versions of the tables. You can prefill a table with information from these tables.)

You must also update the Printer Support menu so that it uses the new Editors, PFTED.EXE and CTTED.EXE. Refer to Chapter 2 in this manual for information on updating the Printer Support menu.

## UNDERSTANDING THE PRINTER FUNCTION TABLE

The Printer Function Table defines the functions supported by a given printer and specifies the **escape sequences** required by the printer to perform those functions.

Escape sequences are comprised of the ESC (escape) control code and one or more characters. The escape control code tells the printer that the next characters are to be used to perform a function rather than to print data. The first or second character identifies the function. The remaining character(s) represents variable data related to the function.

For example, the PM19 Colorwriter printer uses the following escape sequence to set form length, where (n) equals the number of inches per page.

ESC C (n)

You enter the hexadecimal equivalent of each character in the Printer Function Table. For example, to set a form length of 11 inches, you enter the following escape sequence.

1B 43 0B

Since escape sequences vary from printer to printer, it is important that you refer to your printer user manual for the correct sequence to enter in the Printer Function Table.

**CREATING A PRINTER FUNCTION TABLE**

Creating a printer function table involves

- Prefilling a table or creating a blank table
- Selecting the functions supported by a given printer
- Entering the appropriate hexadecimal codes for each function
- Writing the printer function table to a disk or diskette

To help you use the Printer Function Table Editor, use the keys in Table 5-1. Pressing the HELP key when you are in the Editor will display a summary of the keys on the workstation screen.

**Table 5-1. Printer Function Table Editor Keys**

<b>Key</b>	<b>Function</b>
BACK TAB	Move cursor to the previous field
RETURN, TAB	Move cursor to the next field
EXEC	Save the values entered in current screen and go to the next screen
NEXT	Save the values entered in the current screen and go to the next screen
PREV	Save the values entered in the current screen and go to the previous screen
NORTH CURSOR CONTROL	Move the cursor up one row
SOUTH CURSOR CONTROL	Move the cursor down one row
HELP	Display the Key Usage Help Screen. Press CANCEL to exit HELP
CANCEL	Return to Edit Function Table menu or Printer Function Table Editor menu
ERASE	Erase the current escape code

## Prefilling a Printer Function Table

A printer function table includes a large amount of information. Consequently, the Printer Function Table Editor allows you to prefill a table with the values from another table. After prefilling the table, you can edit the table, changing only the values that are unique to the new function table.

The Printer Installation diskette contains printer function tables for all the Wang printers. The file names for printer function tables end with the extension .PFT.

If you have a Winchester drive, you may wish to copy all the printer function tables from the Printer Installation diskette into the /BIN directory on your system. This will save you time when you are prefilling a printer function table.

If you have a diskette-based system, you can get the table from the Printer Installation diskette when prompted to specify the name of the file containing the desired printer function table. (You do not have room on System Diskette I to keep copies of all the Wang printer function tables.)

Perform the following steps to prefill a printer function table:

1. Select Printer Function Table Editor from the Printer Support menu and press EXEC. The Printer Function Table Editor screen appears. Refer to Figure 5-1.

```

PRINTER FUNCTION TABLE EDITOR
Copyright 1988 by Wang Laboratories, Inc.
Version 4.0

Select an Item and Proceed

    ■ Prefill Function Table
    ~ Edit Function Table
    ~ Write Function Table to Disk
    ~ Create Blank Function Table

EXECUTE - Proceed
CANCEL  - Return to Menu
    
```

Figure 5-1. The Printer Function Table Editor Screen

## 5-6 CREATING AND EDITING THE PRINTER TABLES

---

2. Select Prefill Function Table and press EXEC. The system prompts you to specify the drive and the name of the file containing the desired printer function table. Refer to Figure 5-2.

```

                                     PRINTER FUNCTION TABLE EDITOR
                                Copyright 1986 by Wang Laboratories, Inc.
                                    Version X.X

Select an Item and Proceed

                                     ■ Prefill Function Table
                                     L Edit Function Table
                                     L Write Function Table to Disk
                                     L Create Blank Function Table

Enter Drive

Enter Filename: .....
```

NEXT - Filename Pattern Search  
EXECUTE - Proceed  
CANCEL - Return to Menu

**Figure 5-2. The Printer Function Table Screen**

3. If necessary, enter the letter specifying the drive that contains the printer function table you want to use. (Remember to insert the Printer Installation diskette in the drive, if necessary.) The Drive field defaults to C on a Winchester system; otherwise, the drive not used is the default.

---

### NOTE:

*If you have a single-diskette drive (with or without a Winchester drive), the Wang PC allows you to treat physical Drive A as logical Drive B. This allows you, for example, to edit a table on a different diskette. Messages and screen prompts will appear when necessary and indicate which diskette to insert in the drive.*

---



4. Press RETURN to move the cursor to the Enter Filename field. Enter the file name of the function table you want to use.

---

### NOTE:

*If you do not remember the file name, pressing the NEXT key displays all files ending with the extension .PFT. When using the NEXT key, be sure to specify the path, for example, /BIN/, before pressing NEXT. If you do not include the second slash, the system will think /BIN is part of a file name and will display an error message.)*

*Printer function tables used with previous versions of the printer software have the file extension .PDT (Printer Driver Table). You can prefill a table with information from these tables. However, because the new table format is different, some data may be lost. Use of the NEXT key ignores tables with .PDT extensions.*

---

5. When the desired file name is entered in the field, press EXEC. The system displays the message "Task completed."

## Creating a Blank Function Table

You can create a blank printer function table and then enter the appropriate specifications.

Perform the following steps to create a blank table:

1. Select Printer Function Table Editor from the Printer Support menu and press EXEC. The Printer Function Table Editor screen appears. Refer to Figure 5-1.
2. Select Create Blank Function Table and press EXEC. The prompt "Press EXECUTE to create table, or CANCEL to abort" appears.
3. Press EXEC. The system displays the message "Task completed."

### Selecting Functions Supported by Your Printer

The Generalized Printer Driver Plus supports the following printer functions. For each function you select, the system will display a screen. You then enter the appropriate hexadecimal values on the screen. Refer to your printer user manual for information on what functions are supported and for the correct codes.

- Reset Printer
- Horizontal Spacing
- Line Feed Spacing
- Form Length
- Printer Error Status Request
- Printer Idle Status Request and Printer Deselect
- Sheet Feeder
- Auto Attributes
- Trap Codes

---

#### NOTE:

*Your printer may support functions not listed here. To use those functions, you will need to specify trap codes. Refer to the section on trap codes later in this chapter.*

---

Perform the following steps to select the functions supported by your printer:

1. Select Edit Function Table from the Printer Function Table Editor menu and press EXEC. The Edit Function Table screen appears. Refer to Figure 5-3.

---

#### NOTE:

*If you selected Prefill Table, functions will be selected according to the printer function table you copied. If you selected Create Blank Function Table, no functions will be selected.*

*The Edit Function Table option does not prompt you to specify a drive and file name. You use this option only **after** selecting Prefill Function Table or Create Blank Table. Prefill gives you a copy of an existing table that you can edit, while Create Blank Table gives you a blank table.*

---

PRINTER FUNCTION TABLE EDITOR  
Edit Function Table

Does this function table support a serial printer?

☐ Yes ☒ No

Select Supported Function(s)

- ☐ Reset Printer
- ☐ Horizontal Spacing
- ☐ Line Feed Spacing
- ☐ Form Length
- ☐ Printer Error Status Request
- ☐ Printer Idle Status Request and Printer Deselect
- ☐ Sheet Feeder
- ☐ Auto Attributes
- ☐ Trap Codes

INSERT - Select Function  
DELETE - Deselect Function

EXECUTE - Proceed  
CANCEL - Return to Menu

Figure 5-3. The Edit Function Table Screen

2. Press the space bar to select Yes if you are creating a table for a serial printer. If you select No, you cannot select Printer Error Status Request and Printer Idle Status Request from the list of supported functions. These apply only to serial printers.
3. Press RETURN to move the cursor to the list of supported functions.
4. Select the functions supported by your printer. Use the space bar to move the acceptance block. When the acceptance block is beside the desired function, press the INSERT key to select it. To remove a prior selection, move the acceptance block next to the function and press DELETE.
5. After you select all the functions supported by your printer, press EXEC. The Printer Information screen appears. Refer to Figure 5-4.

#### The Printer Information Screen

The Printer Information screen allows you to assign a name to the printer (optional) and to specify the maximum number of characters the printer can print on a line for each pitch supported by your printer.

```

PRINTER FUNCTION TABLE EDITOR
Printer Information

Enter Printer Name  CCCCCC

For each of the following pitches, enter the maximum number of
characters per line (buffer size) that your printer supports

Less than 10 pitch 233

10 pitch 233

12 pitch 233

15 pitch 233

Greater than 15 pitch 233

PREV - Previous Function Screen    EXECUTE - Proceed
NEXT - Next Function Screen        CANCEL - Return to Menu
                                   HELP   - Key Usage
```

**Figure 5-4. The Printer Information Screen**

Perform the following steps to complete the Printer Information screen:

1. Enter the name of your printer, if desired. Press RETURN.
2. Enter the maximum number of characters for each pitch supported by your printer. If your printer does not support a pitch, leave the default value 233 in the field. Press RETURN to move from field to field.
3. Press NEXT or EXEC when you are finished entering values on the screen. The system temporarily saves the data you have entered. It does not save the data permanently until you write the table to disk/diskette.

## Serial Printer Settings Screen

The Serial Printer Settings screen (Figure 5-5) appears only if you selected serial printer in the Edit Function Table screen (Figure 5-3).

```

          PRINTER FUNCTION TABLE EDITOR
          Serial Printer Settings*

Select Baud Rate

  L 50      L 110     L 200     L 1200    L 3800    ■ 8800     L 56 K
  L 75      L 134.5   L 300     L 1800    L 4800    L 16 K     L 1.344 M
  L 100     L 150     L 600     L 2400    L 7200    L 19.2 K   L 1.544 M

Select Data Bits      Select Stop Bits      Select Parity

  L 5 Data Bits      ■ 1.0 Stop Bits      ■ No Parity
  L 8 Data Bits      L 1.5 Stop Bits    L Odd Parity
  L 7 Data Bits      L 2.0 Stop Bits    L Even Parity
  ■ 8 Data Bits
  L 9 Data Bits

PREV - Previous Function Screen    EXECUTE - Proceed
NEXT - Next Function Screen        CANCEL - Return to Menu
                                   HELP - Key Usage
    
```

Figure 5-5. The Serial Printer Settings Screen

Following is a brief explanation of the serial printer settings. Refer to the *Asynchronous Communications Guide* for more detailed information. Refer to your printer manual for the correct settings for your printer.

- **Baud rate** — Baud rate, or bits per second, specifies the speed at which data is transmitted.
- **Data bits** — You must specify the number of binary digits (bits) of code used to represent data during transmission.
- **Stop bits** — You must specify the number of stop bits per character. During transmission, each character is followed by a stop element of 1, 1.5, or 2 bits in duration, that signals the end of character transmission.
- **Parity check** — You must specify the type of parity check (if any) used to detect transmission errors in received data.

Perform the following steps to select the serial printer settings:

1. To select the baud rate, press the space bar until the acceptance block is next to the correct value. Press BACKSPACE to move the cursor backwards through the items.
2. Press RETURN to move to the Select Data Bits field. Press the space bar until the acceptance block is next to the correct value.
3. Select the values for stop bits and parity using the same procedure as in Step 2.
4. Press EXEC or NEXT to temporarily save the serial printer settings and go to the next screen.

### Entering Values in the Printer Function Screens

You are now ready to complete the appropriate screen for each function you selected.

When entering values in the printer function screens, note the following information:

- All values must be hexadecimal.
- If the hexadecimal value is one digit, you can enter the one digit or the digit preceded by a zero. For example, to enter the hexadecimal value F, you can enter 0F (zero and F) or F.
- The first escape code of a sequence must be in the leftmost field; the second code must be in the next field; and so on. You cannot leave blanks between codes.
- Each escape code represents one byte. (A byte represents one alphabetic or symbolic character.)

### Reset Screen

When you turn on your printer, it performs certain physical movements, such as adjusting the carriage mechanism, and sets print defaults, such as the location of the margins and the tab settings. When the printer performs a Reset operation, it returns to that **power-on** state. (Some printer manuals call this "initializing" the printer.) The printer may perform a reset operation because of data coming from the application or when the user turns the printer off and then on.

Before the printer performs a reset operation, it "flushes the buffer;" that is, it prints any characters left in the buffer. This ensures that data is not lost when the printer is reset. Some serial printers then send an XON or DC1 code to the driver to confirm that data can be sent. If you have a serial printer that does **not** support XON or DC1, you should leave this field blank. Otherwise, you might lose data.

Selecting the Reset Printer function allows you to enter the hexadecimal values that comprise the Reset Printer escape sequence.

Perform the following steps to complete the Reset screen. Refer to Figure 5-6.

1. Enter the correct escape codes in the Reset Printer field. For example, the escape codes for the Wang PM12 printer are 1B 0D 50 11.

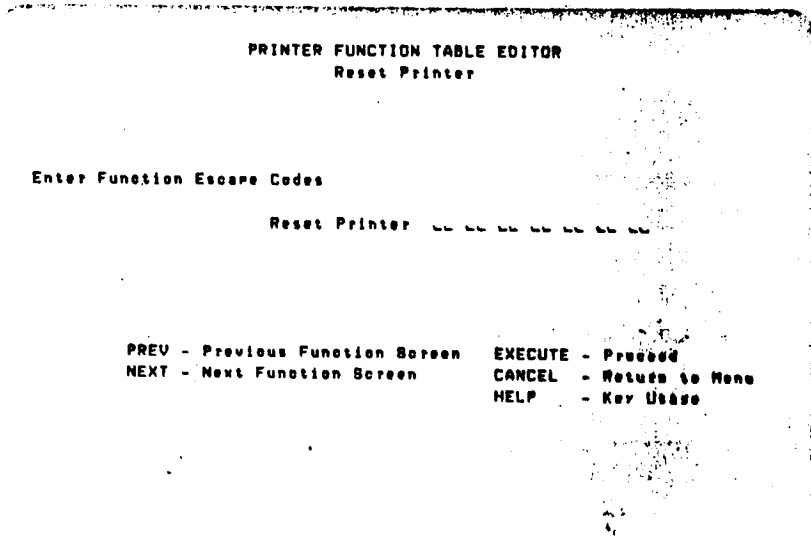


Figure 5-6. The Reset Printer Screen

2. If you have a serial printer that sends an XON or DC1 code after reset, you must enter the hexadecimal value 11 at the end of the escape sequence. When the driver sees this value in the field, it waits for an XON or DC1 code before sending additional data.
3. Press EXEC or NEXT to temporarily save the serial printer settings and go to the next screen.

#### Horizontal Spacing Screen

Horizontal Spacing is the number of characters that print per inch (cpi). This is also called pitch. For example, the Courier 10 print wheel is a 10-pitch print wheel because it prints ten characters per inch. The Horizontal Spacing screen allows you to specify the escape sequences for fixed-pitch and proportional spacing.

```

PRINTER FUNCTION TABLE EDITOR
Horizontal Spacing

Enter Function Escape Codes

Set Horizontal Spacing (characters per inch)  CC CC CC

Less than 10 cpi  CC CC CC CC CC CC      10 cpi  CC CC CC CC CC CC
12 cpi  CC CC CC CC CC CC      15 cpi  CC CC CC CC CC CC

Greater than 15 cpi  CC CC CC CC CC CC

Set Horizontal Motion Index  CC CC CC

Disable Proportional Spacing  CC CC CC CC

PREV - Previous Function Screen    EXECUTE - Proceed
NEXT - Next Function Screen        CANCEL  - Return to Menu
                                   HELP    - Key Usage

```

Figure 5-7. The Horizontal Spacing Screen

In fixed-pitch mode, each character is given the same amount of space on the printed line. Proportional spacing allots varying amounts of horizontal space on the printed line depending on the width of a character (for example, a *w* would get more space than an *i*).

The printer driver controls proportional spacing using the Horizontal Motion Index and Disable Proportional Spacing fields. (The printer firmware does not control proportional spacing.)

The Horizontal Motion Index is a unit of measure used to determine the spacing between characters (to accommodate the varying character widths). The space is defined by the number of HMI units. To use proportional spacing on a Wang PC, your printer must support an HMI that is specified in units of 1/120 of an inch.

You enter the escape codes specific to the printer in the Set Horizontal Motion Index field. The driver calculates the last byte in the sequence based on the HMI. When the printer receives the escape sequence entered in the Disable Proportional Spacing field, it returns to fixed-pitch mode.



Perform the following steps to complete the Horizontal Spacing screen (refer to Figure 5-7):

1. Enter the correct escape codes in the Set Horizontal Spacing field. (You enter only the escape sequence specified in your printer manual. The driver calculates the last byte.) Press RETURN.
2. Enter the hexadecimal values for each characters per inch setting supported by your printer. Press RETURN to move from field to field.
3. If your printer supports proportional spacing, enter the escape sequences in the Set Horizontal Motion Index and Disable Proportional Spacing fields.
4. Press EXEC or NEXT to temporarily save the specifications and go to the next screen.

## Line Feed Spacing Screen

Line Feed Spacing is the number of vertical lines printed per inch.

The Line Feed Spacing screen allows you to specify the escape sequence for each instance of line feed spacing supported by your printer.

PRINTER FUNCTION TABLE EDITOR  
Line Feed Spacing

Enter Function Escape Codes

Set Line Feed Spacing (lines per inch)	CC	CC	CC	CC	CC	CC	CC
2 lpi	CC	CC	CC	CC	CC	CC	CC
2 2/3 lpi	CC	CC	CC	CC	CC	CC	CC
3 lpi	CC	CC	CC	CC	CC	CC	CC
4 lpi	CC	CC	CC	CC	CC	CC	CC
6 lpi	CC	CC	CC	CC	CC	CC	CC
8 lpi	CC	CC	CC	CC	CC	CC	CC
12 lpi	CC	CC	CC	CC	CC	CC	CC
24 lpi	CC	CC	CC	CC	CC	CC	CC
48 lpi	CC	CC	CC	CC	CC	CC	CC

PREV - Previous Function Screen

NEXT - Next Function Screen

EXECUTE - Proceed

CANCEL - Return to Menu

HELP - Key Usage

Figure 5-8. The Line Feed Spacing Screen

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Perform the following steps to complete the Line Feed Spacing screen (refer to Figure 5-8):

1. Enter the correct escape codes in the Set Line Feed Spacing field. Press RETURN.
2. Enter the hexadecimal value for each increment of line feed spacing supported by your printer. Press RETURN to move from field to field.
3. Press EXEC or NEXT to temporarily save the specifications and go to the next screen.

### Form Length Screen

Form Length determines how many lines per page are available to the printer for a single page. When the printer has been fed the amount of paper specified as its form length, printing stops and the printhead is positioned at the top of the next form.

The Form Length screens allow you to specify the escape sequence for each form length supported by your printer.

```

                                PRINTER FUNCTION TABLE EDITOR
                                Form Length

Enter Function Escape Codes

      Set Form Length  cc cc cc

1 inch  cc cc cc cc cc cc cc cc      7 inch  cc cc cc cc cc cc cc cc
2 inch  cc cc cc cc cc cc cc cc      8 inch  cc cc cc cc cc cc cc cc
3 inch  cc cc cc cc cc cc cc cc      9 inch  cc cc cc cc cc cc cc cc
4 inch  cc cc cc cc cc cc cc cc     10 inch  cc cc cc cc cc cc cc cc
5 inch  cc cc cc cc cc cc cc cc     11 inch  cc cc cc cc cc cc cc cc
6 inch  cc cc cc cc cc cc cc cc     12 inch  cc cc cc cc cc cc cc cc

PREV - Previous Function Screen    EXECUTE - Proceed
NEXT - Next Function Screen        CANCEL - Return to Menu
                                   HELP   - Key Usage
```

Figure 5-9. The Form Length Screen

## PRINTER FUNCTION TABLE EDITOR Form Length

Enter Function Escape Codes

Set Form Length    C C C C C C

13 inch    C C C C C C C C C C C C

14 inch    C C C C C C C C C C C C

15 inch    C C C C C C C C C C C C

PREV - Previous Grouping  
NEXT - Next Function Screen

EXECUTE - Proceed  
CANCEL - Return to Menu  
HELP - Key Usage

**Figure 5-10. The Form Length Screen (Second Screen)**

Perform the following steps to complete the Form Length screen (refer to Figure 5-9):

1. Enter the correct escape codes in the Set Form Length field. Press RETURN.
2. Enter the hexadecimal value for each form length supported by your printer. Press RETURN to move from field to field.
3. Press EXEC or NEXT to go to the screen that specifies codes for form lengths 13 inches through 15 inches. (Refer to Figure 5-10.) Enter the hexadecimal codes for the form lengths that your printer supports.
4. Press EXEC or NEXT to temporarily save the specifications and go to the next screen.

### Printer Error Status Request Screen

The Printer Error Status Request function is supported only for serial printers. This function allows the printer to tell the driver when there is a printer fault and what type of fault has occurred. Printer faults vary from printer to printer. Examples of printer faults include: leaving the cover open, running out of paper or toner, and paper jams.

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The driver sends an error status request sequence only if the serial printer issues an XOFF or DC3 code when there is a fault. (XOFF and DC3 tell the driver to stop sending data.) The sequence must consist of three bytes.

In response to the error status request, the printer sends back an STX (start of text) code (02H) followed by a **status byte**. The status byte consists of eight bits. Each bit identifies a specific fault. Refer to your printer manual for information on which bits are used to identify each fault.

The driver uses a pattern of bits called a **mask** to find out which bit to look for; that is, it identifies which fault affects the printer. The driver then looks at the bit to see whether it is on or off. The bit must be on to indicate a fault. The driver can then display the appropriate error message.

The Fault Status Mask indicates the bit(s) that identifies printer fault conditions. The Deselect Status Mask identifies the bit that indicates whether the printer is deselected.

```

PRINTER FUNCTION TABLE EDITOR
Printer Error Status Request

Enter Function Escape Codes
Error Status Request 00 00 00

Select Mask Bit Position
Deselect Status Mask  7 6 5 4 3 2 1 0
                     ■ ■ ■ ■ ■ ■ ■ ■

Press INSERT to Select Mask Bit Position(s)
Fault Status Mask    7 6 5 4 3 2 1 0
                     ■ ■ ■ ■ ■ ■ ■ ■

PREV - Previous Function Screen  EXECUTE - Proceed
NEXT - Next Function Screen      CANCEL  - Return to Menu
                                   HELP    - Key Usage
```

Figure 5-11. The Printer Error Status Request Screen

Perform the following steps to complete the Printer Error Status Request screen (refer to Figure 5-11):

1. Enter the correct escape codes in the Error Status Request field. Press RETURN.
2. Press the space bar to select the correct bit in the Deselect Status Mask field. Press RETURN.
3. Press the space bar to move the cursor to each desired fault bit. Then press INSERT to select the bit. You can select more than one fault bit.
4. Press EXEC or NEXT to temporarily save the specifications and go to the next screen.

### Printer Idle Status Request and Printer Deselect Screen

The Printer Idle Status Request and Printer Deselect functions are supported only for serial printers.

The printer can be deselected by the user or by the application software. (The software deselects the printer only for cut sheet feeding in Word Processing.)

Before sending the Deselect sequence to the printer, the driver sends an Idle Status Request to see if the printer buffer is empty. The Idle Status Request sequence must consist of three bytes. The printer driver deselects the printer only when there are no more characters in the buffer (to avoid losing data).

After the driver sends the Idle Status Request sequence, the printer returns an STX code (02H) followed by a status byte to the driver. The idle status is defined by the bit selected from the Idle Status Mask field. For example, on the Wang PM012 printer, the idle status bit is bit 5. The driver looks at the idle status bit to see whether it is on or off. When it is on, the driver sends the escape sequence needed to deselect the printer. After deselecting, the printer returns an XOFF or DC3 to the driver to keep it from sending data.

```

                                PRINTER FUNCTION TABLE EDITOR
                                Printer Idle Status Request and Printer Deselect

Enter Function Escape Codes
                                Idle Status Request 00 00 00
                                Deselect Printer      LL LL LL

Select Mask Bit Position

                                7 6 5 4 3 2 1 0
Idle Status Mask               ■ ■ ■ ■ ■ ■ ■ ■

PREV - Previous Function Screen    EXECUTE - Proceed
NEXT - Next Function Screen        CANCEL  - Return to Menu
                                   HELP    - Key Usage
```

**Figure 5-12. The Printer Idle Status Request and Deselect Screen**

Perform the following steps to complete the Idle Status Request and Deselect Printer screen (refer to Figure 5-12):

1. Enter the function escape codes for your printer in the Idle Status Request field. Press RETURN.
2. Enter the function escape codes for your printer in the Deselect Printer field. Press RETURN.
3. Press the space bar to select the printer idle bit for your printer.
4. Press NEXT or EXEC to temporarily save the data and go to the next screen.

### Sheet Feeder Screen

The Sheet Feeder screen tells the printer driver that a sheet feeder is installed. It also provides the printer with the escape sequences needed to feed paper from each paper bin and to clear the platen. Clearing the platen causes the printer to eject the last page of a document without feeding a new sheet of paper.

## PRINTER FUNCTION TABLE EDITOR Sheet Feeder

Enter Function Escape Codes

Configure Feeder    CC CC CC

Select Bin 1    CC CC CC CC CC CC CC CC

Select Bin 2    CC CC CC CC CC CC CC CC

Select Bin 3    CC CC CC CC CC CC CC CC

Clear Platen    CC CC CC CC

PREV - Previous Function Screen

NEXT - Next Function Screen

EXECUTE - Proceed

CANCEL - Return to Menu

HELP - Key Usage

**Figure 5-13. The Sheet Feeder Screen**

To install, or configure, a sheet feeder on your printer, you enter the escape codes specific to your printer in the Configure Feeder field. The driver calculates the last byte in the sequence based on which bin and which paper format you selected on the Print menu.

For example, to print an 8.5 by 11 inch document in Portrait mode using Bin Two, the driver uses binary value 0010 (Bin Two) as the first part of the byte and 0000 (portrait mode) as the second part of the byte. The driver converts this binary value (0010 0000) to hexadecimal and sends it to the printer as the last part of the escape sequence.

When calculating the last byte, the driver always uses the four bits that identify the bin that is being used as the first part of the byte. These are the **most significant bits** (or **nibble**) in the byte. The driver uses the four bits that identify the contents of the bin as the second part of the byte. These are the **least significant bits**. Your printer must support this format.

### Binary Values Used to Specify the Bin

0001 - Bin One

0010 - Bin Two

0011 - Envelope Bin

### Binary Values Used to Specify the Contents of the Bin

- 0000 — 8.5 x 11 Portrait
- 0001 — 8.5 x 11 Landscape
- 0011 — 8.5 x 13 Portrait
- 0011 — 8.5 x 14 Portrait
- 0100 — 8.5 x 10.5 Portrait
- 0101 — 210 mm x 297 mm (A4) Portrait
- 0111 — 7.25 x 10.5 Portrait
- 1000 — # 10 Envelope
- 1001 — European Envelope

Perform the following steps to complete the Sheet Feeder screen (refer to Figure 5-13):

1. Enter the correct escape codes in the Configure Feeder field. Press RETURN. (You enter the escape sequence specified in your manual; the driver calculates the last byte.)
2. Enter the correct escape codes for each paper bin supported by your printer. Press RETURN to move from field to field.
3. Enter the correct escape codes in the Clear Platen field.
4. Press NEXT or EXEC to temporarily save the specifications and go to the next screen.

### Auto Attributes Screen

The Generalized Printer Driver Plus supports printers in which the firmware is capable of bold printing and automatic underscoring. The driver enables and disables bold and underscore printing on a character by character basis using the values entered in the Auto Attributes screen.



## PRINTER FUNCTION TABLE EDITOR Auto Attributes

Enter Function Escape Codes

Auto Bold Enable    `CC CC CC CC`  
Auto Bold Disable   `CC CC CC CC`

Auto Underscore Enable   `CC CC CC CC`  
Auto Underscore Disable   `CC CC CC CC`

PREV - Previous Function Screen	EXECUTE - Proceed
NEXT - Next Function Screen	CANCEL - Return to Menu
	HELP - Key Usage

Figure 5-14. The Auto Attributes Screen

### NOTE:

*The driver controls the printing of boldface text and underscores for printers in which these attributes are not enabled in the firmware. For example, to print boldface text, the driver sends instructions that cause the printer to make multiple passes on the line, striking over the bold character(s) several times.*

Perform the following steps to complete the Auto Attributes screen (refer to Figure 5-14):

1. Enter the correct escape codes in each of the four fields. Use RETURN to move from field to field.
2. Press NEXT or EXEC to temporarily save the specifications and go to the next screen.

### Trap Codes Screen

The Trap Codes function allows you to use functions supported by your printer, such as color, that are not included in the list of supported functions. For example, you may want to print a word in color in a word processing document.

When you type the word in the word processing document, you would enter a trap code before and after the word. The trap code tells the printer driver to stop processing and find out what function you want the printer to perform. The trap code is associated with a trap string that identifies the function you want to perform.

PRINTER FUNCTION TABLE EDITOR  
Trap Codes

Enter Function Escape Codes

Trap Code	Trap String	Trap Code	Trap String
CC	CC CC CC CC	CC	CC CC CC CC
CC	CC CC CC CC	CC	CC CC CC CC
CC	CC CC CC CC	CC	CC CC CC CC
CC	CC CC CC CC		
CC	CC CC CC CC CC		

PREV - Previous Function Screen  
NEXT - Next Function Screen

EXECUTE - Proceed  
CANCEL - Return to Menu  
HELP - Key Usage

Figure 5-15. The Trap Codes Screen

In the following example, the at symbol (@) is used as a trap code to tell the printer to turn color on and the percent symbol (%) is used as a trap code to turn color off.

The dog is @red%.

When the printer driver comes to the at symbol, it looks up the associated trap string on the Trap Codes screen. The trap string is an escape sequence specific to the printer that turns color on.

The printer driver supports up to eight WISCII trap code characters. You can choose any character or symbol with a hexadecimal code above 20, i.e. from 21H-FFH. Refer to Appendix B for the hexadecimal codes for the WISCII characters.

Perform the following steps to complete the Trap Codes screen (refer to Figure 5-15):

1. Choose the WISCII characters you want to use as trap codes. Look up their hexadecimal values in Appendix B.
2. Enter the hexadecimal code for the first trap code in the first Trap Code field. Press RETURN to move to the Trap String field.
3. Enter the function escape codes for your printer for the desired trap string.
4. Repeat steps 2 and 3 for each trap code that you want to specify.
5. Press NEXT or EXEC to temporarily save the specifications and go to the next screen.

## Writing a Printer Function Table to a Disk or Diskette

When you press EXEC or NEXT after completing each function screen, the system temporarily saves the specifications. To permanently save these specifications, you must write the function table to a disk or diskette.

You must store the Printer Function Table on the disk or diskette you use to start the system.

Perform the following steps to write a printer function table to a disk or diskette:

1. When the message "Task completed" appears, press CANCEL twice to return to the Printer Function Table Editor menu. (If you press CANCEL from the Printer Function Table Editor menu, the system will warn you that the file has not been updated. Press CANCEL only if you do not want to save the changes.)
2. Select Write Function Table to Disk and press EXEC.
3. Enter the letter of the drive containing the disk or diskette on which you will be storing the table. Press RETURN.
4. Enter the new file name. If you pre-filled a table, the system automatically enters the file name of the function table you copied into memory. Strike over it with the new file name. (If you do not change the file name, the system will write over the existing file when you press EXEC.) If you created a blank table, enter a new file name. Be sure the file name includes the extension.

---

### NOTE:

*If the table does not fit on the drive you select, the Editor displays the error message "Insufficient Space on Disk." Replace the current diskette with a new one and save the table on the new diskette.*

---

5. Press EXEC to write the table to disk. (Press CANCEL only if you do not want to save the table.) If the file exists on disk, the system will warn you. You can then overwrite the existing file by pressing EXEC or you can enter a new file name. The system displays the message "Task completed."

## **UNDERSTANDING THE CHARACTER TRANSLATE TABLE**

When you press a key to place a character on your workstation screen, the character displayed is assigned a numerical value called a hexadecimal code. On the Wang PC, this two-digit value is a WISCII code. (Refer to Appendix B for the WISCII character set.) Each character on the screen is labeled with this hexadecimal code. When application data is sent to the printer, the system reads the WISCII codes into the Character Translate Table. The Character Translate Table matches the PC WISCII codes with the character codes used by your printer.

For example, the WISCII code for the degree symbol is 80H. However, to print the degree symbol on many daisy wheel printers, you need hex code 60. Therefore, you must enter 60H at the position in the table representing the degree symbol. The printer driver will then send 60H to the printer instead of 80H when 80H is read into the Character Translate Table.

You can create up to ten Character Translate Tables for each printer. For example, you might want to create tables unique to different print wheels or fonts that you use.

If you do not specify a table, the driver will send data to the printer untranslated.

### **Some Reasons To Modify a Character Translate Table**

It is generally easier to modify a copy of an existing table, rather than to create a blank table and then fill in all the blanks. However, using a copy of an existing table means that you must modify the existing table to match the character codes on your printer.

For example, you may need to modify the copy of the table to

- Specify the correct position of a WISCII character for a given printer. For example, the PC WISCII code for the degree symbol is 80H. (The H identifies the number as a hexadecimal value.) However, your printer requires 60H to print the degree symbol. You must modify the table so that the driver sends 60H to the printer when it receives 80H from the application.

- Change the escape sequence used to access the characters on spokes 0 or 95 of a daisy wheel. (Standard print wheels have ASCII characters on spokes 1 – 94. Some print wheels use spokes 0 and 95 to print special characters, such as the cent and right angle symbols.) Let's say your printer uses ESC Y to print whatever character is on spoke 95. However, the printer table you copied specifies ESC A to print whatever character is on spoke 95. You must change ESC A to ESC Y.
- Reassign characters available in your printer character set to WISCII characters. For example, you could reassign the copyright symbol (©) to the equal symbol (=). When you press the Equal key, the equal symbol (=) would display on the screen, but the copyright symbol would print on the printer. Reassigning characters can save you keystrokes. For example, it takes three keystrokes to create the copyright symbol in a word processing application. By reassigning the character to the equal symbol, which requires one keystroke, you save two keystrokes each time.
- Create characters not available in your printer character set using the Overstrike feature in the translate table. For example, let's say that the character set in your printer does not include the dollar symbol (\$). To print the dollar symbol, the table must translate the WISCII code for the dollar symbol (24H) into the combination of characters needed by the printer (uppercase S with a vertical bar).

## NOTE:

*All of the above examples apply **only** if your print wheel or printer font contains the required characters. For example, if you want to create the cent symbol, both lowercase c and the forward slash (/) must exist on the print wheel or in the font.*

## Determining the Layout of Characters on Your Printer

Before you create a Character Translate Table, you should determine what characters are available on your printer and their position. This helps you to identify

- The character positions you need to change
- The characters you need to create, such as the dollar symbol

You can determine the layout of characters on a daisy wheel using the BASIC program in Appendix D. If you are using a matrix printer, refer to your printer manual to determine the layout of characters in each font. (For a matrix printer, you may need to set certain switches on the printer to access the different fonts. Refer to your printer manual.)

## CREATING A CHARACTER TRANSLATE TABLE

Creating a Character Translate Table involves

1. Prefilling from an existing translate table or creating a blank table
2. Specifying Proportional Spacing Data, if appropriate
3. Editing special characters
4. Editing the Character Translate Table
5. Writing the Character Translate Table to disk or diskette

To help you use this editor, use the keys summarized in Table 5-2 to enter the values. Press **HELP** to see a summary of keys.

**Table 5-2. Keys Used To Edit Special Characters Screen**

Key	Function
BACK TAB	Move cursor to the previous field.
SPACE BAR	Select Shift Out/Shift In on the Special Characters screen.
RETURN, TAB	Move cursor to the next field.
EXEC	Save values entered in current screen and go to the next screen.
NEXT	Display the next section in the table.
PREV	Display the previous section in the table.
NORTH CURSOR CONTROL	Move cursor up one row.
SOUTH CURSOR CONTROL	Move cursor down one row.

(continued)

**Table 5-2. Keys Used To Edit Special Characters Screen (continued)**

Key	Function
CENTER	Switch between characters and width tables.
FORMAT	Display either hexadecimal numbers or their WISCII equivalents in the Character Translate Table.
GO TO	Edit the overstrike character position.
HELP	Display Key Usage Help Screen. Press CANCEL to leave HELP.
CANCEL	Return to Character Translate Table Editor menu.
HOME	Move cursor to first available position at the extreme left of the Translate Table.
SHIFT NEXT	Save the current screen and display the next Character Translate section.
SHIFT PREV	Save the current Character Translate screen and display the next section.

### Prefilling a Translate Table

A Character Translate Table includes a large amount of information. Consequently, the Character Translate Table Editor allows you to prefill a table with the values from another character translate table. After the table has been filled, you can edit the table, changing only the values that are unique to the new translate table.

The Printer Installation diskette contains translate tables for all the Wang printers. The file names for translate tables end with the extension .CTT.

If you have a Winchester drive, you may wish to copy all the translate tables from the Printer Installation diskette into the /BIN directory on your system. This will save you time when you are prefilling a translate table.

If you have a diskette-based system, you can get the table from the Printer Installation diskette when prompted to specify the name of the file containing the desired translate table. (You do not have room on System Diskette I to keep copies of all the Wang printer translate tables.)

Perform the following steps to prefill a translate table:

1. Select Character Translate Table Editor from the Printer Support menu and press EXEC. The Character Translate Table Editor screen appears. Refer to Figure 5-16.

```
CHARACTER TRANSLATE TABLE EDITOR
Copyright (c) 1988 by Wang Laboratories, Inc.
Version X.XX

Select an Item and Proceed

    M Prefill Translate Table
    L Edit Translate Table
    L Write Translate Table to Disk
    L Create Blank Translate Table

EXECUTE - Proceed
CANCEL  - Return to Menu
```

**Figure 5-16. The Character Translate Table Editor Screen**

2. Select Prefill Translate Table and press EXEC. The system prompts you to specify the drive and the name of the file containing the desired table.



3. Enter the letter of the drive that contains the table you want to use. (Remember to insert the Printer Installation diskette in the drive, if necessary.) The Drive defaults to C on a Winchester system; otherwise, the drive not used is the default.

---

**NOTE:**

*If you have a single-diskette drive, with or without a Winchester drive, you can treat physical Drive A as logical Drive B. If you invoke the editor from Drive A, you can edit a table on another diskette. Messages and screen prompts will appear when necessary and indicate which diskette to use. You cannot switch drives and swap diskettes if you have a dual-diskette drive or if you are running the editor from the Winchester disk.*

---

4. Press RETURN to move the cursor to the Enter Filename field. Enter the file name of the table you want to use.

---

**NOTE:**

*If you do not remember the file name, pressing the NEXT key displays all files ending with the extension .CTT. When using the NEXT key, be sure to specify the path, for example, /BIN/, before pressing NEXT. If you do not include the second slash, the system will think /BIN is part of a file name and will give you an error message.*

---

5. When the desired file name is entered in the field, press EXEC. The system displays the message "Task completed."

### Creating a Blank Translate Table

You can create a blank Character Translate Table and then enter the appropriate escape sequences.

Perform the following steps to create a blank table:

1. Select Character Translate Table Editor from the Printer Support menu and press EXEC. The Character Translate Table Editor screen appears.
2. Select Create Blank Table and press EXEC. The prompt "Press EXECUTE to create table, or CANCEL to abort" appears.
3. Press EXEC. The system displays the message "Task completed."

## The Edit Translate Table Function

After prefilling a Character Translate Table or creating a blank translate table, you are ready to enter the appropriate values. To do this, you select the Edit Translate Table option.

This option does not prompt you to specify a drive and file name. You use this option only after selecting Prefill Translate Table or Create Blank Translate Table. The Prefill option gives you a copy of an existing table that you can edit, while the Create Blank Translate Table option gives you a blank table.

Select Edit Translate Table and press EXEC. The Proportional Spacing Data screen appears. Refer to Figure 5-17.

## Specifying Proportional Spacing Data

Proportional spacing allots varying amounts of horizontal space, or, character width, on the printed line (e.g., a *w* would get more space than an *i*).

You specify character widths in a character width table. You create the character width table by selecting "Yes" from the Proportional Spacing Data screen.

```

                                CHARACTER TRANSLATE TABLE EDITOR
                                Proportional Spacing Data

Does this translate table include a character width table?  _ Yes  ☒ No

Enter ps print wheel name (if applicable)  ~~~~~~

EXECUTE - Proceed
CANCEL  - Return to Menu
HELP    - Key Usage
```

**Figure 5-17. The Proportional Spacing Data Screen**

You fill in the character widths when the appropriate screen is displayed. Refer to the topic on the character width table later in this section for more information.

Perform the following steps to complete the Proportional Spacing Data screen:

1. Select "Yes" if you want to include a character width table. Press RETURN.
2. Enter the name of the proportional spacing print wheel (optional). If you use several print wheels, you may find it useful to name them.
3. Press EXEC. The Edit Special Characters screen appears. Refer to Figure 5-18.

## Editing Special Characters

The Edit Special Characters screen allows you to

- Specify overstrike characters
- Specify escape code characters
- Specify whether Shift Out/Shift In access is supported

### Specifying Overstrike Characters

An overstrike character is a character that is used to create a new character when a printer prints it over another character. For example, when a vertical bar ( | ) overstrikes an uppercase S (S), a dollar sign (\$) is printed.

Each character in the translate table can have up to two overstrike characters associated with it. You specify the overstrike characters on the Edit Special Characters screen. You specify which characters are associated with overstrike characters on the Edit Character Table screen.

Perform the following steps to specify overstrike characters (refer to Figure 5-18):

1. In the first entry field in the 1st Overstrikes field, that is, in the space under the number 1, enter the print wheel position of the character you want to use as a first overstrike. (Use the BASIC program in Appendix D to determine the print wheel position.) For example, 7C is the hexadecimal value that specifies the position of the vertical bar ( | ) on most Wang PC daisy wheels.

```

CHARACTER TRANSLATE TABLE EDITOR
Edit Special Characters

Enter the Hex Codes for Overstrike Characters

      1  2  3  4  5  6  7  8  9  A  B  C  D  E  F
1st Overstrikes  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL
2nd Overstrikes  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL

Enter the Hex Codes for Escape (ESC) Code Characters

      1  2  3  4  5  6  7  8  9  A  B  C  D  E  F
      LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL  LL

Is Shift Out/Shift In Character Access Supported?  L Yes  L No

NORTH - Previous Row      EXECUTE - Proceed
SOUTH - Next Row         CANCEL  - Return to Menu
                          HELP    - Key Usage
    
```

Figure 5-18. The Edit Special Characters Screen

2. Enter the print wheel position for each character you want to use as a first overstrike. You do not have to fill all the fields on this line.
3. Press the South cursor control key to move the cursor to the 2nd Overstrikes field. Enter the print wheel position for each of the second overstrike characters the same way you entered them for the first overstrike characters.

#### Specifying Escape Code Characters

A standard print wheel has 96 petals. Most standard print wheels have ASCII characters on 94 of the petals. Some print wheels have two additional characters on the remaining two petals. Some printers can access these extra characters using escape codes.

For example, the ASCII character set does not include the cent symbol (¢). You can print the cent symbol using overstrikes. Or, you can print the cent symbol using an escape sequence, if the escape sequence is supported by your printer. For example, some printers use ESC Y to print the cent symbol.

Each escape code character consists of two bytes. The first byte of each sequence is the hexadecimal value 1B (this represents Escape). The second byte is the WISCII value for the escape code character. (You find the escape sequence in your printer manual.) You enter **only** the second byte in the Escape Code Character field. For example, to use ESC Y to print the cent symbol, you enter 59 (the WISCII code for Y) in the Escape Code Character field.

You specify up to 15 escape code characters on the Edit Special Characters screen. You specify which characters in the table are to be used as escape characters on the Edit Character Table screen.

After looking up the escape codes in your printer manual, perform the following steps to enter escape code characters for your printer:

1. Press the South cursor control key to move the cursor to the Escape (ESC) Code Characters field.
2. Using Appendix B, enter the WISCII code for each escape code character.

## Specifying Shift Out/Shift In Character Access

Printers support non-ASCII characters in various ways. For example, if you are using a print wheel with special characters, you can reassign the special characters to WISCII characters. Or, you can print non-ASCII characters using printer-specific escape sequences.

In addition, some printers support non-ASCII characters using the Shift Out/Shift In feature. When the printer receives a Shift Out code, it knows that the character following the code is not an ASCII character. The non-ASCII character may be included in an extended character set (in a matrix printer) or may exist on the second row of petal positions (on a daisy wheel).

You specify whether Shift Out/Shift In Character Access is supported on the Edit Special Characters screen. You specify the codes needed to use the Shift Out/Shift In feature on the Edit Character Table screen.

If your printer supports Shift Out/Shift in Character Access, you select "Yes" on the Edit Special Characters screen.

Perform the following steps to specify whether your printer supports Shift Out/Shift In Character Access:

1. Press the South cursor control key to move the cursor to the Shift Out/Shift In field.
2. If your printer supports Shift Out/Shift In Character Access, press the space bar to select Yes. Otherwise, leave the acceptance block next to No.
3. Press EXEC or SHIFT and NEXT to go to the next screen. The Edit Character Table screen appears. Refer to Figure 5-19.

```

CHARACTER TRANSLATE TABLE EDITOR
Edit Character Table (Hex Display Mode)

      1 2 3 4 5 6 7 8 9 A B C D E F
1st Overstrikes
2nd Overstrikes
ESC Code Characters

Enter Hex Codes for Character Translate Table

      1 0 1 2 3 4 5 6 7 8 9 A B C D E F
1 |-----|
2 | | | | | | | | | | | | | | | | | |
3 | | | | | | | | | | | | | | | | | |
4 | | | | | | | | | | | | | | | | | |
  |-----|

Enter Position of Overstrike Character(s):  1st 0   2nd 0

GO TO   - Edit Character Position      EXECUTE - Proceed
FORMAT  - Switch Display Mode          CANCEL  - Return to Menu
CENTER  - Edit Width/Character Table   HELP    - Key Usage
  
```

Figure 5-19. The Edit Character Table Screen

## Editing the Character Table

The Edit Character Table screen (refer to Figure 5-19) performs several functions.

- It displays the actual character of the overstrike and escape code characters specified in the previous screen.
- It allows you to display and edit the Character Translate Table in either hexadecimal or WISCII mode. You use the FORMAT key to switch between the two modes.
- It allows you to assign overstrike characters to individual characters in the table.
- It allows you to assign escape code characters to WISCII characters in the table.

- It allows you to display and edit the Character Width table associated with proportional spacing.
- It allows you to specify the hexadecimal values needed to support the Shift Out/Shift In feature.

The complete Character Translate Table contains 14 rows and 16 columns; the window allows you to view three rows at a time. The row and column headings of the table correspond to the hexadecimal digits that comprise the WISCII code. The hexadecimal values in the highlighted fill-in fields in the table correspond to font or print wheel positions for a given printer.

Press the HELP key to display a list of keys you can use to move the cursor to different rows of the table.

Perform the following steps to change the print wheel or font position of a WISCII character in the translate table:

1. Move the cursor to the position in the table representing the WISCII character whose position you want to change. For example, move the cursor to the position representing the degree symbol (80H).
2. Enter the hexadecimal code that accesses the character on your printer. For example, enter 60.

Perform the following steps to assign an overstrike character(s) to a WISCII character in the table:

1. Move the cursor to the position in the table representing the WISCII character you want to create using overstrikes. For example, move the cursor to the position representing the cent symbol (7FH).
2. Enter the position of the base character on the particular print wheel (refer to the BASIC printout for this). For example, the hexadecimal value 63 is used to access lowercase c on most PC daisy wheels.
3. Press GO TO to move the cursor to the Enter Position of Overstrike Character(s) field.
4. Look up the desired overstrike character in the 1st Overstrikes field at the top of the screen. For example, if the forward slash (/) is in column 1, enter 1 in the 1st field.
5. If desired, assign a second overstrike character.
6. Press EXEC to save the character/overstrike combination for that position.

Perform the following steps to specify an escape sequence:

1. Move the cursor to the position in the table representing the WISCII character that will be created through the escape sequence. For example, move the cursor to the position representing the cent symbol (7FH).
2. Look up the desired escape character in the ESC Code Characters field at the top of the screen.
3. Enter the column position of the escape character. For example, if your printer uses ESC Y to print the cent symbol and the letter Y is in column 1, enter 01.

## Editing the Width Table

You use the Edit Width Table screen to specify character widths for a proportional spacing print wheel (Figure 5-20). The system will use this screen only if you selected Yes on the Proportional Spacing screen (Figure 5-17).

```

CHARACTER TRANSLATE TABLE EDITOR
Edit Width Table

      1 2 3 4 5 6 7 8 9 A B C D E F
1st Overstrikes
2nd Overstrikes
ESC Code Characters

Enter Character Widths

      0  1  2  3  4  5  6  7  8  9  A  B  C  D  E  F
2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Enter Position of Overstrike Character(s):  1st 0   2nd 0

GO TO   - Edit Character Position      EXECUTE - Proceed
FORMAT  - Switch Display Mode          CANCEL  - Return to Menu
CENTER  - Edit Width/Character Table    HELP    - Key Usage
  
```

Figure 5-20. The Edit Width Table Screen

Character width is expressed in increments of 1/60 inch. You specify character width by entering a number from three to eight at the character position in the table. The character width defaults to 8/60 inch.



You may find it helpful to refer to one of the Proportional Spacing translate tables (listed below) when determining what character widths to use.

PM1507A.CTT (Canadian Bold PS)  
 PM1504A.CTT (Scandinavian Detail PS)  
 PM1505A.CTT (Multilingual Bold PS)  
 BOLD14A.CTT (Bold PS)  
 BOLD15A.CTT (Bold PS)  
 BOLD12A.CTT (Boldface PS)

Perform the following steps to edit the width table (refer to Figure 5-20):

1. Press CENTER to display the Edit Width Table screen. The default Edit Width Table appears.
2. Move the cursor to the position in the table representing the WISCII character whose width you want to change.
3. Enter a number from three to eight.
4. Repeat steps 2 and 3 for each character whose width you want to change.
5. Press EXEC.

## Using Shift Out/Shift In

Shift Out/Shift In allows you to access non-ASCII characters (characters with a hexadecimal value greater than 80H) on an extended print wheel or in an extended character set. For example, let's say the trademark symbol (WISCII code E9) is on the second row of the print wheel. You must enter a hexadecimal value at the E9 position in the table that tells the printer to shift out to the second row.

Let's say your printer requires the following sequence to access the trademark symbol:

SD (Shift Out) A (41H) SI (Shift In)

If you enter 41 at the E9 position in the table, the printer will print an A. To specify Shift Out/Shift In Access, you must add the hexadecimal value 80 to 41H. You then enter the new hexadecimal value, C1, at position E9 in the table.

Perform the following steps to specify a hexadecimal code needed to access non-ASCII characters on an extended print wheel.

1. Look up the hexadecimal value of the non-ASCII character in your printer manual.
2. Add 80H to the value of the non-ASCII character.
3. Enter the new hexadecimal value in the table at its corresponding WISCII position (refer to Appendix B).

## **Writing a Translate Table to Disk or Diskette**

When you press EXEC or NEXT after completing each function screen, the system temporarily saves the specifications. To permanently save these specifications, you must write the function table to a disk or diskette.

You must store the Character Translate Table on the disk or diskette you use to start the system.

Perform the following steps to write a Character Translate Table to a disk or diskette:

1. When the message "Task completed" appears, press CANCEL twice to return to the Character Translate Table Editor. (If you press CANCEL from the Character Translate Table Editor menu, the system will warn you that the disk file has not been updated. Press CANCEL only if you do not want to save the changes.)
2. Select Write Translate Table to Disk and press EXEC.
3. Enter the letter of the drive containing the disk or diskette on which you will be storing the table. Press RETURN.
4. Enter a new file name, if desired. (If you prefilled a table, the system automatically enters the file name of the table you copied. You may wish to use the same file name and write over the existing file.) If you created a blank table, enter a file name. Be sure the file name includes the extension .CTT.

---

### **NOTE:**

*If the table does not fit on the drive you select, the Editor displays the error message "Insufficient Space on Disk." Replace the current diskette with a new one and save the table on the new diskette.*

---

5. Press EXEC to write the table to disk. (Press CANCEL only if you do not want to save the table.) If the file exists on disk, the system will warn you. You can then overwrite the existing file by pressing EXEC or you can enter a new file name. The system displays the "Task completed" message.

Remember to re-boot the system any time you make changes to the printer tables. Otherwise, the system will use the original printer tables.

MCC Multipoint Communications Controller (card) 1-6  
 CTT Shared Device Interpretation Table

Translation Mode 1-2, 4-7

PRINTER 1 IS ON  
 PRINTER 2 IS OFF

Device Control Purpose= Driver, 1-4

Port 1-4 1-4

Form 1-4

Port 1-4 1-4

CTT Character Translate Table, 4-6

Printing

1-4  
 command print 1-4

Driver Configuration

create 1-4



## APPENDIX C

### TESTING YOUR PRINTER

---

After installing the printer software, you can test your printer using the following steps:

1. Turn the printer on. If the SELECT, STATUS, or ON-LINE light on the printer is not on, press the SELECT button or ON-LINE button.
2. Using the Platen knob, roll a sheet of paper into the printer.
3. Turn your system on and complete the appropriate start-up procedures according to whether you have a diskette-based or Winchester system.
4. If your system displays the Main System menu, select Printer Support and press EXEC. If your system displays the DOS Command Line, go to step 5.
5. Redirect the printer to the appropriate port for the printer you want to test. If you are using the system menus, select the appropriate Redirect option from the Printer Support menu. If you are using the DOS Command Processor, enter one of the following DOS commands.

DOS Command	Printer or Peripheral
rdir 4 prn	CPU parallel port
rdir 4 prn1	CPU serial port
rdir 4 prn2	MCC bottom port 2
rdir 4 prn3	MCC middle port 3
rdir 4 prn4	MCC top port 4
rdir 4 prnt	Wang Thermal Printer

## C-2 TESTING YOUR PRINTER

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6. If you are using the system menus, press CANCEL to return to the Main System menu. Then select DOS Command Processor and press EXEC. (If you are using a diskette-based system, the prompt A: will appear. If you are using a Winchester system, the prompt C: will appear.)
7. When the DOS Command Line is displayed, press the CONTROL key and the P key at the same time. Press RETURN.
8. When the prompt A: or C: appears on the screen again, enter CHKDSK and press RETURN. The system displays the information provided by the Check Disk utility on the screen and then prints it. (This utility reports the number of bytes available on disk and in memory.)
9. When the printer stops, press the CONTROL key and the P key at the same time. Press RETURN.
10. When the prompt prompt A: or C: appears, type EXIT and press RETURN to display the Main System menu.

## APPENDIX F

### ERROR MESSAGES

---

This appendix contains the messages that your Wang PC might display when you are installing printer software or modifying printer tables. The explanation begins with the name of the program that displays the message. It includes a brief explanation of each messages and possible remedies, where appropriate. The messages are listed alphabetically.

**Cannot initialize error message buffer with file**

*Meaning:* CTTED.EXE and PFTED.EXE. The system cannot find, or load into a buffer, the error message file(s) used to display error and status messages.

*Action:* Make sure the error message files (PFTEDERR.MSG or CTTEDERR.MSG) are in the same directory as the Editor files, or on the system path. If the files are not on the system, copy them from the Printer Support diskette.

**Cannot initialize help message buffer with file**

*Meaning:* CTTED.EXE and PFTED.EXE. The system cannot find, or load into a buffer, the help message file(s) used to display help messages.

*Action:* Make sure the help message files (PFTEDHLP.MSG or CTTEDHLP.MSG) are in the same directory as the Editor files, or on the system path. If the files are not on the system, copy them from the Printer Support diskette.

## F-2 ERROR MESSAGES

---

### Cannot initialize screen message buffer with file

*Meaning:* CTTED.EXE and PFTED.EXE. The system cannot find, or load into a buffer, the screen message file(s) used to display screen messages.

*Action:* Make sure the screen message files (PFTEDMSG.MSG or CTTEDMSG.MSG) are in the same directory as the Editor files, or on the system path. If the files are not on the system, copy them from the Printer Support diskette.

### Conversion of table to new format may lose some data

*Meaning:* PFTED.EXE. The previous version of the Printer Function Table Editor produced a table with a .PDT extension. The current .PFT table has a different format. The current editor will convert the old table data to the new format, but some data may be lost in the process.

*Action:* You press EXECUTE if you want to convert the table even though you may lose some data. You press CANCEL if you decide not to convert the table.

### Could not find file

*Meaning:* CTTED.EXE and PFTED.EXE. You specified a file or a path that your PC could not find on the disk or diskette.

*Action:* Make sure that you specify the correct file ID, path name, and drive designation, and try again. Run the Directory Display utility to see if the file is on the disk or diskette. If the file is there, it may be damaged. If you have a backup copy of the file, load it onto the diskette and try again. If you still can't find the file, run the Check Disk utility to see if there is a disk or diskette problem.

### Could not open file

*Meaning:* CTTED.EXE and PFTED.EXE. The system could not open the specified file for reading or writing.

*Action:* Try to load and copy your file again. Run the Check Disk utility to see if there is a problem with the disk or diskette.

### Could not read file

*Meaning:* CTTED.EXE and PFTED.EXE. The Editor found and opened the specified file (printer table) but could not read it. The file may be damaged internally or may be too small.

*Action:* You must create the file (table) again.



**Could not write file**

*Meaning:* CTTED.EXE and PFTED.EXE. The Editor found and opened the specified file (table) but could not write it to a disk or diskette. The file may be the wrong size or some system information in the file may be missing.

*Action:* Try writing the file to the same file name in a different drive or to a different file name in the same drive.

**Disk access error encountered**

*Meaning:* CTTED.EXE and PFTED.EXE. The system detected a disk error that prevented disk access.

*Action:* Turn the system off and on again.

**Diskette is write protected**

*Meaning:* CTTED.EXE and PFTED.EXE. The system could not write the specified file to a diskette because it is write protected.

*Action:* Use another diskette or remove the write-protect tab from the current diskette.

**Drive not ready or diskette missing**

*Meaning:* CTTED.EXE and PFTED.EXE. You specified a drive that is not ready or you did not insert a diskette.

*Action:* Check to be sure you inserted a diskette. Check the Up and Insert arrows on the diskette to be sure that the diskette is inserted correctly, close the door, and try the operation again. Check the cables to that drive. If the drive still does not work, refer to Chapter 2 in the *Wang Professional Computer Troubleshooting Guide* for troubleshooting suggestions.

**Driver configuration file access error**

*Meaning:* GPDPLUS.EXE. The system cannot read the driver configuration file. The file may be damaged.

*Action:* Create a new driver configuration file.

**Driver configuration file missing**

*Meaning:* GPDPLUS.EXE. You specified a driver configuration file in the DEVICE command line that your PC could not find on the disk or diskette.

*Action:* Make sure you specify the correct file ID, path name, and drive designation, and try again. Run the Directory Display utility to see if the file is on the disk or diskette. If the file is not there, create it.

## F-4 ERROR MESSAGES

---

### **Driver configuration file name missing from command line**

*Meaning:* GPDPLUS.EXE. You did not specify a driver configuration file in the DEVICE command line in the CONFIG.SYS file.

*Action:* Enter the file name of the driver configuration file in the DEVICE command line in the CONFIG.SYS file. If necessary, create the driver configuration file.

### **File size indicates invalid table; Please press CANCEL**

*Meaning:* CTTED.EXE and PFTED.EXE. A valid translate table can be either 512 bytes or, if you are using a Character Width Table, 768 bytes in length. A valid function table can be 512 bytes in length. The Editor cannot read a file of any other size.

*Action:* You cannot use a printer table that is the wrong size. You must create the table again. (You should also check to see whether you accidentally renamed an existing file that is *not* a printer table using the .CTT or .PFT extensions. You may wish to rename the file, without the .CTT or .PFT extension.)

### **Hex value 'FE' is not allowed in disk sequence**

*Meaning:* PFTED.EXE. The system uses hex value 'FE' as a sequence terminator in a file. You cannot use it in a printer function escape sequence.

*Action:* You must erase the hex value 'FE' from the hex field and enter the correct hex value.

### **Insufficient space on disk**

*Meaning:* CTTED.EXE and PFTED.EXE. There is no more available space on the diskette. You must use another diskette or delete some files before continuing.

*Action:* Run the Disk Directory utility to determine the amount of available space. If there are files on the diskette that you do not frequently use, copy them to another diskette and delete them from the original diskette.

### **Invalid character**

*Meaning:* CTTED.EXE and PFTED.EXE. You entered an invalid character, such as an asterisk (\*), a colon (:), or a question mark (\$) in a file name field.

*Action:* Make sure the file name follows the format rules (refer to the *User's Guide*) and try again.

**Invalid drive**

*Meaning:* CTTED.EXE and PFTED.EXE. You specified a drive that does not exist or has an invalid format.

*Action:* Make sure the drive designation is correct and try again. The only legal characters are A - Z or a - z.

**Invalid filename**

*Meaning:* CTTED.EXE and PFTED.EXE. You did not enter a file name in the field, or you did not enter a correct directory path before entering the file name.

*Action:* Make sure the file name follows the format rules (refer to the *User's Guide*) and try again.

**Invalid filename: '.CTT' suffix required**

*Meaning:* CTTED.EXE. You did not include .CTT as the extension in a character translate table file name.

*Action:* Make sure the file name includes the extension .CTT.

**Invalid filename: '.PFT' suffix required**

*Meaning:* PFTED.EXE. You did not include .PFT as the extension in a character translate table file name.

*Action:* Make sure the file name includes the extension .CTT.

**Invalid hex character**

*Meaning:* CTTED.EXE and PFTED.EXE. You entered an invalid hex character.

*Action:* Enter a valid hex value in the field. Valid hex characters are in the range 0 - 9, A - F, and a - f.

**Invalid port name found in command line**

*Meaning:* GPDPLUS.EXE. The only valid port names in the command line in a driver configuration file are: CPUP, CPUS, MCC2, MCC3, MCC4.

*Action:* Correct the spellings of the port names in the driver configuration file.

**Invalid serial port parameter**

*Meaning:* GPDPLUS.EXE. You selected incorrect communications settings for the serial printer in the Printer Function Table.

*Action:* Check the Serial Printer Settings screen and make corrections, where appropriate.

## F-6 ERROR MESSAGES

---

### Invalid table extension found in command line

*Meaning:* GPDPLUS.EXE. You specified a table extension that was incorrect.

*Action:* Enter the extension .PFT for printer function tables and .CTT for character translate tables.

### MCC board missing

*Meaning:* GPDPLUS.EXE. You specified an MCC port in the driver configuration file, but the MCC card is either not installed or is not installed in the slot specified in the driver configuration file.

*Action:* Install the MCC board or specify the correct slot number.

### MCC shared device interface not installed

*Meaning:* GPDPLUS.EXE. You installed an MCC card, but you did not specify the MCC Shared Device Interface driver in the CONFIG.SYS file.

*Action:* Enter MCCSDI.TTY in the CONFIG.SYS file. Be sure to enter MCCSDI.TTY before the printer driver DEVICE line(s) in the file. (The MCCSDI.TTY file must be on your system.)

### No files found which match pattern X:\*.CTT

*Meaning:* CTTED.EXE. You specified a path that did not include any files with the extension .CTT

*Action:* Correct the path name and try again.

### No files found which match pattern X:\*.PFT

*Meaning:* PFTED.EXE. You specified a path that did not include any files with the extension .PFT

*Action:* Correct the path name and try again.

### No special character contained at this location

*Meaning:* CTTED.EXE. You specified an overstrike character or an escape code character that does not exist at the location on the Edit Special Characters screen corresponding to the entered position number.

*Action:* Enter the hex code for the overstrike character or escape code character at the appropriate position on the Edit Special Characters screen.

**Port already allocated**

*Meaning:* GPDPLUS.EXE. You entered a port parameter in the driver configuration file that is being used by another application.

*Action:* Enter a different port parameter.

**Printer Status Request function is not allowed for parallel printers**

*Meaning:* PFTED.EXE. Parallel printers do not support the Printer Error Status Request and Idle Status Request functions.

*Action:* You must deselect the Printer Error Status Request and Idle Status Request functions. Or, you must specify that the function table is for a serial printer.

**Unformatted or bad diskette**

*Meaning:* CTTED.EXE or PFTED.EXE. You did not format the diskette, or the utility detected a defective track where a file was to be written.

*Action:* Run the Disk Format utility, or use another diskette.

**Write Error on Output File**

*Meaning:* INSTALLP.EXE. Your diskette is either too full or damaged.

*Action:* Run the Disk Directory utility to determine if the diskette is too full. If there are files on the diskette that you do not frequently use, copy them to another diskette and delete them from the original diskette. Or, run the Check Disk utility to see if there is a problem with the diskette.

